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UNIVERSITY OF BRISTOL

School of Economics, Finance and Management

Three Essays on Corporate Governance

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*A dissertation submitted to the University of Bristol in accordance with the requirements
for award of the degree of Doctor of Philosophy in the Faculty of Social Sciences and Law*

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Abstract

This thesis consists of three essays, presented as chapters, on corporate governance. The first chapter examines the internal corporate governance channels that focus on CEO compensation structure and the board of directors. The following two chapters study corporate governance mechanisms from an external perspective.

The first chapter uses the employment history of over 17,000 directors of non-financial firms. It finds that boards with directors with executive experience in commercial banks compensate CEOs with higher inside debt. This finding is consistent with arguments that professional experience shapes decision making. The experience effect dominates the potential conflict of interest effect. These results are robust to several specifications addressing potential endogeneity. The increase in inside debt associated with banker-directors shifts CEOs' incentives closer to the optimum, at which point the agency costs of outside debt are minimised to benefit shareholders.

The second chapter seeks to understand how freedom of the press affects corporate misconduct. The paper shows that managers engage more in accrual-based earnings management when their firms have a higher percentage of sales in countries with low media freedom. This effect is stronger when foreign product markets are further away from firm headquarters, when English is not the national language of the foreign partners, or when the fraction of institutional investors is low. This chapter also shows that the insiders of these firms tend to be involved in opportunistic insider trading through buy and sell transactions. The chapter offers novel insights into the economic impact of media freedom on corporations.

The third chapter explores how political uncertainty affects private loan contracts by exploiting the U.S. gubernatorial elections as a source of variation in uncertainty. This chapter shows that lenders are more likely to impose financial covenants and state-contingent pricing grids on borrowers headquartered in the states in election years, compared with off-election years. The effects are stronger when the winning voting margins are small, supporting the notion that political uncertainty manifests itself in loan contracting outcomes. Additionally, the effect of elections is more pronounced among the borrowers with greater information asymmetry. The evidence of this chapter suggests that gubernatorial elections increase transitory uncertainty, yielding significant impacts on private debt contracts.

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Author's Declaration

I declare that the work in this dissertation was carried out in accordance with the requirements of the University's *Regulations and Code of Practice for Research Degree Programmes* and that it has not been submitted for any other academic award. Except where indicated by specific reference in the text, the work is the candidate's own work. Work done in collaboration with, or with the assistance of, others, is indicated as such. Any views expressed in the dissertation are those of the author.

SIGNED:DATE:

Contents

1	Introduction	1
2	Banker-directors and CEO Inside Debt	9
2.1	Introduction	10
2.2	Literature review	17
2.2.1	CEO inside debt	17
2.2.2	Banker-directors and CEO inside debt	20
2.3	Data and Descriptive Statistics	22
2.3.1	Sample construction	22
2.3.2	Variable measurement	22
2.3.3	Univariate analysis	28
2.4	The Relation Between Bankers on Boards and CEO Inside Debt . . .	29
2.5	The Allocation of Bankers to Firm Boards	33
2.6	Why Shareholders Appoint Banker-Directors?	38
2.7	Robustness tests	41
2.7.1	Controlling for Firm Performance and Firm Risk	41
2.7.2	Using OLS Model	41
2.7.3	Alternative Measure of CEO Inside Debt Incentives	41
2.7.4	An example of the association between the presence of banker- director and CEO inside debt	42
2.8	Conclusions	42
2.9	Tables of Chapter 2	45

2.10	Appendices of Chapter 2	59
3	Freedom of the press and corporate misconduct	69
3.1	Introduction	70
3.2	Literature Review and Hypothesis Development	76
3.2.1	Related literature	76
3.2.2	Hypothesis development	77
3.3	Data, Sample and Measures	79
3.3.1	Data and Sample selection	79
3.3.2	Measurements of media freedom variable	79
3.3.3	Measure of earnings management	82
3.3.4	Control variables	82
3.4	Empirical results	84
3.4.1	Freedom of the press and earnings management	84
3.4.2	Endogeneity tests	87
3.5	Economic mechanisms	91
3.5.1	Geography of information	91
3.5.2	Language barriers	92
3.5.3	Institutional investors	93
3.6	Additional analyses	94
3.6.1	Costs of accrual-based earnings management	94
3.6.2	Opportunistic insider trading	95
3.7	Robustness tests	97
3.7.1	Alternative measures and model specifications	97
3.7.2	Control for characteristics of subsidiaries	98

3.7.3	Control for corporate governance factors	99
3.8	Conclusion	100
3.9	Tables of Chapter 3	101
3.10	Appendices of Chapter 3	114
4	Political Uncertainty and Private Debt Contracting: Evidence from the U.S. Gubernatorial Elections	123
4.1	Introduction	124
4.2	Related literature and the main predictions	130
4.2.1	Private debt contracting	130
4.2.2	Political uncertainty	132
4.2.3	Main predictions	133
4.3	Data and the empirical model	136
4.3.1	Data	136
4.3.2	Empirical model	138
4.4	Empirical results	140
4.4.1	Baseline regression results	140
4.4.2	Capital-based and performance-based covenants and pricing grids	142
4.4.3	Inspecting economic mechanisms	146
4.5	Robustness tests	149
4.5.1	Alternative measures of political uncertainty	149
4.5.2	Controlling for a concurrent event	150
4.5.3	Controlling for other accounting decisions	150
4.6	Conclusion	151

4.7	Tables of Chapter 4	153
4.8	Appendices of Chapter 4	166
5	Conclusions and Future Research	171
5.1	Summary and Conclusion	171
5.2	Limitations and Recommendation for Future Research	173
	Bibliography	174

List of Tables

2.1	The percentage of firms with a banker-director	45
2.2	Descriptive statistics	46
2.3	Univariate analysis	47
2.4	The presence of banker-directors and inside debt	48
2.5	Marginal effects on actual inside debt	49
2.6	Probability of having a banker-director – Heckman	50
2.7	The presence of banker-directors and inside debt – Heckman	51
2.8	Probability of having a banker-director – Propensity-score matching	52
2.9	The presence of banker-directors and inside debt - Propensity-score matching	53
2.10	Time-variation in board composition (1)	54
2.11	Time-variation in board composition (2)	55
2.12	Optimal CEO incentive ratio (1)	56
2.13	Optimal CEO incentive ratio (2)	57
2.14	The presence of banker-directors and inside debt: Monitoring mech- anisms	58
3.1	Percentage of foreign product markets	101
3.2	Summary statistics	102
3.3	Correlation matrix	103
3.4	Freedom of the press and earnings management	104
3.5	Different types of media freedom and earnings management	105
3.6	Endogeneity tests	106

a	Panel A: Endogeneity tests using a sample of firms with foreign trading partners having a change in media freedom	106
b	Panel B: Endogeneity tests using difference-in-differences analysis . . .	107
3.7	Economic mechanism	108
3.8	Impact of costs to accrual-based earnings management	109
3.9	Freedom of the press and opportunistic insider trading	110
3.10	Robustness tests	111
a	Panel A: One-step regression on earnings management, alternative accrual-based earnings management measure and alternative media restriction construction	111
b	Panel B: Freedom of the press and earnings management: Controlling for characteristics of subsidiaries	112
c	Panel C: Freedom of the press and earnings management: Controlling for corporate governance factors	113
4.1	Frequency of financial and nonfinancial covenant types	153
4.2	Descriptive statistics	154
4.3	Univariate test	155
4.4	Effect of political uncertainty on debt contracts	156
a	Panel A: Baseline regressions	156
b	Panel B: Average marginal effects at mean	157
4.5	Effect of political uncertainty on types of covenants	158
4.6	Effect of political uncertainty on types of pricing grids	159
4.7	Economic mechanism (1)	160
a	Regressions	160

b	Average marginal effects at mean	161
4.8	Economic mechanism (2)	162
4.9	Robustness tests	163
a	Panel A: Economic policy uncertainty index	163
b	Panel B: Accounting for presidential election years	164
c	Panel C: Controlling for financial reporting activities	165

Chapter 1

Introduction

In the last twenty years, governance practices have changed significantly in response to the financial crisis of 2008 and corporate scandals (Goergen and Tonks, 2019; Zalewska, 2014). However, recent dynamics in political and economic issues, such as concerns about the Chinese economy in late 2015 or the Brexit referendum in June 2016, have shifted uncertainty to unprecedented levels (Davis, 2016). Therefore, questions have arisen around the changes in corporate governance structures and the impact of these changes on corporate outcomes under uncertain or different institutional environments. In this thesis, I attempt to answer these questions from various perspectives.

The key themes in this thesis are (i) how internal corporate governance approaches, i.e. boards of directors and executive compensation structure, relate to the agency theory and (ii) whether external corporate governance mechanisms are driven by the institutional environment or political factors. Both themes influence firm outcomes and the design of effective governance structures adapted to the growing socio-economic risks and unprecedented long-term trends.

Regarding the first theme, Jensen and Meckling (1976) document that shareholders ultimately bear the agency costs associated with agency conflict between debtholders and shareholders and should create incentives for the manager to handle the firm in a way that respects the interests of both types of stakeholders. This dynamic can be achieved when the manager is compensated with debt-like instru-

ments in addition to equity. Jensen and Meckling (1976) also suggest that CEOs with higher personal debt-to-equity ratios will manage firms more conservatively and reduce overall risk. Empirical studies on executive compensation structure have supported the theory of Jensen and Meckling (1976), finding that firms whose CEOs have insider debt holdings have less risky financial and investment policies, such as diversified firm structure and higher asset liquidity (Cassell et al., 2012), lower loan spreads, and fewer restrictive covenants (Anantharaman et al., 2014). Therefore executive compensation, inside debt, plays a vital role as an internal corporate governance channel in reducing risks for firms and encouraging firms to focus on long-term corporate performance.

In terms of the second theme, in addition to the mechanisms that emanate from within firms, many corporate governance factors originate from outside the boundaries of firms (Walsh and Seward, 1990). Existing literature on corporate governance has suggested that institutional factors matter for corporate governance and that firms must adapt to the institutional environment in which firms operate (La Porta et al., 1997, 1998). Therefore, uncertainty surrounding the economic environment or legal factors due to changes in government policies or political leadership leads to varied corporate outcomes and decisions (Bernanke, 1983; Dixit and Pindyck, 1994). Moreover, there has been increasing attention afforded to the role of analysts and the media in improving the information environment, reducing corporate fraud, and enhancing internal governance structures (Chen et al., 2015; Irani and Oesch, 2016; Miller, 2006; You et al., 2018). Therefore, together with internal corporate governance mechanisms, such as boards of directors or executive compensation contracts, external factors driven by a firm’s institutional environment or

economic factors affect firm activities.

The objective of this thesis is to examine how internal and external corporate mechanisms affect managers' risk-taking incentives and firm outcomes. The rest of the thesis consists of three self-contained chapters, followed by a concluding chapter that draws together the contributions and limitations of the thesis and suggests directions for future research. Chapter 2 presents the internal corporate governance mechanism by linking board characteristics and CEO compensation structure. Chapters 3 and 4 study external corporate governance mechanisms, with Chapter 3 looking at the monitoring roles of the business press based on the differences in institutional environments, and Chapter 4 studying the monitoring roles of private lenders during political uncertainty. The content of each chapter is presented in greater details below.

Chapter summary

Chapter 2: Banker-directors and CEO inside debt

This chapter, joint work with Piotr Korczak and Mariano Scapin, investigates how the presence of directors with executive experience in a commercial bank (banker directors) affects CEO inside debt. Directors on boards have both advice and monitoring roles (Adams and Ferreira, 2007; Adams et al., 2010). Therefore, board of director members with banking experience are expected to improve the information flow between firms and credit institutions and provide valuable industry-specific financial expertise to the board (Kroszner and Strahan, 2001). However, board members with existing or past links to credit institutions may have incentives to support decisions that benefit debtholders but are potentially harmful to sharehold-

ers. The underlying reasons may be the conflicts of interest that emerge when firms have bankers on the board (Güner et al., 2008; Hilscher and Şişli-Ciamarra, 2013) or these individuals' past experiences (Kor and Sundaramurthy, 2009; MacCrimmon and Wehrung, 1990; Westphal and Fredrickson, 2001). Arguably, banker directors may design debtor-friendly compensation policies for CEOs (*the conflict of interest effect*), which inherently involve the use of inside debt. Similarly, bankers on boards may also push for debtholder-friendly compensation structures due to personal links to the credit sector (*the experience effect*). Chapter 3 aims to test this assertion.

CEO inside debt is positively related to the presence of a banker director on a firm's board after controlling for firm and CEO characteristics found to determine inside debt in existing research (Sundaram and Yermack, 2007; Liu et al., 2014). We find that not only current bankers but also directors who left their positions in a bank make the CEO incentives more creditor friendly. This finding is consistent with the cognitive bias argument. Additional tests of the credit relationship between banks and firms show that the positive link between inside debt and banker directors is independent from the credit relationship with the firm, suggesting also that the second explanation dominates. These results are robust to the Heckman two-stage regressions using the number of banks in the firm's state as an instrument and controlling for confounding observable factors and locally exogenous variations in appointing new banker directors after covenant violations. These results are also robust to alternative measures of CEO inside debt and alternative specifications. Additionally, our supplementary test shows that the increase in inside debt associated with banker directors shifts CEO incentives closer to the optimum, at which point the agency costs of outside debt are minimised to benefit shareholders. Fi-

nally, the cross-sectional tests indicate that bankers on boards provide additional monitoring that is beneficial to shareholders. This chapter contributes to literature on the determinants of inside debt and to literature on how directors' experience affects firm decisions and CEO incentives.

Chapter 3: Freedom of the press and corporate misconduct

The third chapter studies whether and how freedom of the press matters by examining corporate outcomes linked to the exposure to foreign product partners in countries with low media freedom. A growing body of literature has shown that the media monitors firm activities and disseminates information to capital markets (Miller, 2006; Bushee et al., 2010; Dyck et al., 2010). However, the information in the media can still be biased if the media is controlled or influenced by other parties (Burgess, 2010; El Ghouli et al., 2019). Additionally, existing literature on media freedom and firm activities (e.g., Kanagaretnam et al., 2018) has focused on cross-sectional country-level data instead of on the firm-level data. This chapter aims to fill this research gap by using the exposure to countries with low media freedom as a proxy for the freedom of the press.

I find that firms are more likely to engage in accrual-based earnings management when they have a high percentage of sales in countries with low media freedom. The effect is economically substantial. Additionally, media freedom in terms of economic, political, and legal factors is important, and these three aspects together have an impact on earnings management. This finding is consistent with the hypothesis that firms take advantage of media restriction to engage in accrual-based earnings management.

Additional tests show that under the high costs of being scrutinised by high audit quality and being detected due to low accounting flexibility, accrual-based earnings management still appears in this type of firm, which suggests that it is easier to manage earnings by taking advantage of the non-transparent environment created by media restriction. Notably, I find that media restriction increases opportunities for insiders to trade on non-public information. Insiders of these firms benefit from not only their insider purchases but also their sales transactions. Overall, these results show that corporate misconduct can be in part explained by a spillover effect of media freedom of export markets.

Chapter 4: Political uncertainty and private debt contracting: Evidence from the U.S. gubernatorial elections

The fourth chapter, jointly with Kirak Kim, examines how private lenders design debt contracts to deal with uncertainty periods. The effect of political frictions on capital market and firm outcomes has intrigued social scientists over the last twenty years. A growing body of literature in economics and finance has studied the link between political uncertainty and corporate outcomes or capital markets (Çolak et al., 2017, 2018; Gulen and Ion, 2016; Julio and Yook, 2012; Pástor and Veronesi, 2012, 2013). However, the ways in which private lenders access and arrange debt contracts against uncertainty has remained largely unexplored. This chapter attempts to fill this research gap.

We use gubernatorial election as an exogenous source of variation in political uncertainty and find that gubernatorial elections have a significant impact on lenders' monitoring demand and on lenders' demand for state-contingent loan pric-

ing. These findings have important implications for firms' costs of capital associated with private loans. Specifically, we find that, in response to potential changes in political uncertainty, lenders increase monitoring intensity by increasing the number of financial covenants and performance pricing provisions during the political uncertainty periods. Our findings therefore indicate that gubernatorial elections have a significant pricing implication for private loan contracts. This is the first study that focuses on covenants and state-contingent pricing by using an exogenous shock from gubernatorial elections.

Chapter 2

Banker-directors and CEO Inside Debt

Abstract

Using employment history of over 17,000 directors of non-financial firms, we find that boards with directors who have executive experience in a commercial bank compensate CEOs with higher inside debt. This result is consistent with arguments that professional experience shapes decision-making. The experience effect dominates the potential conflict of interest effect. In line with the experience argument, the result holds for both current and past bank executives and for directors from both banks which are and banks which are not the firm's creditors. These results are robust to several specifications addressing potential endogeneity. The increase in inside debt associated with banker-directors moves the CEO's incentives closer to the optimum in which agency costs of outside debt are minimized to benefit shareholders. In line with the monitoring role of bankers, we also find that the link between inside debt and banker-directors is stronger in firms with weaker corporate governance standards.

Keywords: inside debt; banker-directors; experience; compensation.

JEL classification: D81, G34, M1.

2.1 Introduction

A conflict of interest arises when a company is financed with debt, as managers tend to make decisions that benefit shareholders at the expense of debtholders. Jensen and Meckling (1976) argue that shareholders ultimately bear the agency costs associated with this conflict, so they should create incentives for the manager to manage the firm in a way that respects the interests of both types of stakeholders. This can be achieved when the manager, in addition to equity, is compensated with debt-like instruments. These debt-like instruments are commonly defined as ‘inside debt’. While several studies document that inside debt leads to less risky financial and investment policies that benefit debtholders (Cassell et al., 2012; Dang and Phan, 2016; Eisdorfer et al., 2015; Liu et al., 2014; Phan, 2014), little is known about why and under which circumstances boards grant CEOs higher levels of inside debt relative to equity. Our paper aims to fill this gap by investigating the relation between CEO inside debt and board characteristics. In particular, we test how the presence of directors with executive experience in a commercial bank (‘banker-directors’) impacts on CEO inside debt.

Individuals serving on company boards are obliged to act in the interest of equity-holders, providing advice and monitoring the management team of the firm. In particular, board members with banking experience are expected to improve the information flow between the firm and credit institutions, and also to provide valuable industry-specific financial expertise to the board (Kroszner and Strahan, 2001). However, board members with current or past links with credit institutions can have incentives to support decisions that benefit debtholders but can be potentially harmful to shareholders. Previous evidence shows that such conflict of

interest leads firms with bankers on the board to take debtholder-friendly strategies. Hilscher and Şişli-Ciamarra (2013) document that firms with creditor-directors are more likely to undertake acquisitions that benefit debtholders, such as diversifying and equity-financed acquisitions. Güner et al. (2008) find that commercial bankers on the board lead to an increase in borrowing but only in financially unconstrained firms which suggests that they may not benefit shareholders but rather boost bank profits. Morek and Nakamura (1999) find that a board appointment of a banker from outside of the industrial grouping leads to stock price underperformance in Japan.

In a similar way, the alignment of banker-directors with debtholders could be linked to the evidence that individuals' previous experiences affect their decision-making in corporations (Benmelech and Frydman, 2015; Bernile et al., 2017; Bertrand and Schoar, 2003; Dittmar and Duchin, 2015; Malmendier and Tate, 2005). The finding is explained by cognitive psychology arguments that personal and professional experiences shape decisions (Hertwig et al., 2004; Nisbett and Ross., 1980). In the board context, Kor and Sundaramurthy (2009) argue that human capital in the form of experience, together with expertise, knowledge and skills that outside directors bring to the board, affect the board's thinking and decisions. The upper echelons theory of Hambrick and Mason (1984) claims that individual experiences and personal traits impact on interpretations in strategic decision-making and hence influence the firm's choices. In an extension of the upper echelons theory, Westphal and Fredrickson (2001) show that outside directors who hold, or held in the past, executive positions in another company, facing incomplete or ambiguous information and limited time, base their decisions, intentionally or not, on experiences from

the other company. Moreover, there is evidence that bankers are more conservative than the rest of executives. MacCrimmon and Wehrung (1990) study more than 500 top-level executives and show that executives from banks exhibit a higher level of risk aversion compared to the rest of the sample.

Based on the above arguments, we expect that banker-directors are likely to design debtor-friendly compensation policies for CEOs, involving a greater use of inside debt. Bankers on boards could represent creditors' interests, pushing for compensation structures that reduce risk for debtholders (*the conflict of interest effect*). Similarly, bankers' decisions can be affected by preferences shaped through their working experience at commercial banks. In this sense, bankers on boards are likely to push for debtholder-friendly compensation structures due to their personal links to the credit sector (*the experience effect*). These two mechanisms are not mutually exclusive though.

The impact of banker-directors on CEO inside debt remains an open empirical question and our testing strategy aims to disentangle the different mechanism through which the relation works. To test this relation, we track employment histories of 17,525 directors of non-financial S&P 1500 firms in the period 2006 to 2014. We define banker-directors as directors with a current or past executive position in a commercial bank. Following the previous literature (Sundaram and Yermack, 2007; Wei and Yermack, 2011), we use the sum of the CEO's *pension plans and deferred compensation* to estimate our two proxies to capture CEO inside debt compensation: relative executive leverage and relative executive incentive.¹ Our baseline regression

¹Executives' pension plans typically include tax-qualified plans and supplemental executive retirement plans (SERPs) (Anantharaman et al., 2014). The executive pension under SERPs does not have to be protected or funded when firm is insolvent; hence, this plan is more closely similar to unsecured corporate debt and has more debt-like compensation characteristics. Second, a deferred compensation plan, which is another form of executive debt-like compensation, is designed

results suggest that, in line with our expectations, CEO inside debt is positively related to the presence of a banker-director on the firm’s board, after controlling for firm and CEO characteristics found to determine inside debt in previous studies (Liu et al., 2014; Sundaram and Yermack, 2007).

We test our two explanations for the relation between bankers on the board and CEO inside debt by separating banker-directors into current and past bank executives. We also identify directors from banks with a current credit relationship with the firm. If the relation is driven by the first explanation – a potential conflict of interest – we should find a stronger link between inside debt and banker-directors who are current executives in a commercial bank, and the link should also be stronger for executives from banks which are current creditors of the firm as the lending relationship leads to a direct incentive to act in the interest of the firm’s debtholders. However, if the relation between CEO inside debt and banker-directors is driven by the cognitive bias argument, we should not see any difference in the relation across the subgroups. Our results indicate that even though we are not able to rule out the conflict of interest explanation, we find that not only current bankers but also directors who left their position in a bank make the CEO’s incentives more creditor-friendly, consistent with the cognitive bias argument. We also find that the positive link between inside debt and banker-directors holds independently of the credit relationship with the firm, suggesting also that the second explanation dominates.

The allocation of banker-directors to boards is not random, raising potential endogeneity concerns (Booth and Deli, 1999; Kroszner and Strahan, 2001). The

for employees to make discretionary investment decisions by involving them lending money back to their firms from their cash compensation at certain interest rates (Wei and Yermack, 2011). Deferred compensation is similar to SERPs as deferred compensation is unprotected, although these assets may or may not be funded.

firm's compensation policy may attract specific types of directors to its board. To address this concern, we perform three tests. First, we use a Heckman two-stage procedure to mitigate the problem that our results could be driven by banker-directors self-selecting into firms with high CEO inside debt. To that end, we use the number of banks in the firm's state as an instrument, based on the assumption that geographic proximity of banks increases the probability of having a banker on the board because of a larger supply of potential directors who have banking experience. Our exclusion restriction is that banks in the proximity do not affect CEO compensation. Second, to control for the confounding observable factors that could be linked with both the presence of banker-directors and CEO incentives, we repeat the analysis using propensity-score matching. The results from these models controlling for endogeneity remain unchanged compared to the baseline OLS results.

Our third approach to the endogeneity issue is to explore changes in the level of CEO inside debt after a banker's appointment to the board. If our main argument that bankers on boards lead to higher levels of inside debt is correct, we expect that, *ceteris paribus*, the appointment of a banker to a board is positively correlated with an increase in CEO inside debt after the appointment, and not with higher levels of inside debt at the time of the appointment. We provide two different tests. In the first one we identify bankers' appointments in firms without banker-directors for the previous five years and measure the level of inside debt post-appointment compared to the pre-appointment period. In our second test we build on Ferreira et al. (2018) who use locally exogenous variations in loan covenant violations to show that after a covenant violation firms increase the number of independent directors who are mainly linked with creditors. We develop a difference-in-difference test to compare

changes in the level of CEO inside debt before and after a covenant violation in firms with and without a new appointment of a banker to the board. Consistent with our expectations, we find that both tests exploiting the time variation in board composition confirm that following a new banker-director appointment the level of CEO inside debt increases, in line with our OLS baseline results.

If bankers on boards lead to higher CEO inside debt – which is expected to benefit debtholders – a question arises if such behavior is detrimental to equity-holder interests (Wei and Yermack, 2011). As discussed above, Jensen and Meckling (1976) argue that equity-holders should incentivize managers to respect debtholders’ interests to reduce agency costs. To analyze whether the increase in inside debt associated with banker-directors leads to an optimal compensation structure from the shareholders’ perspective, we base on the empirical setup of Campbell et al. (2016). Campbell et al. (2016) build on theoretical insights from Edmans and Liu (2010) to estimate the optimal CEO’s inside debt-to-equity ratio. We replicate their result and show that firms grant inside debt to move CEO incentives up or down closer to the optimum. But, more importantly, we also show that a banker on the board increases the speed of convergence to the optimum. We conclude that the positive effect of banker-directors on inside debt we document leads to improvements in the structure of executive incentives which is ultimately beneficial for shareholders. In a further supplementary test to confirm these potential benefits, we show that the impact of banker-directors on CEO inside debt is particularly strong in companies with entrenched managers and with weak external corporate governance – in firms with many antitakeover provisions and in firms with low institutional ownership. The result corroborates the argument that bankers on boards provide additional

monitoring that is beneficial to equityholders (Kroszner and Strahan, 2001).

Our paper contributes to the literature in several ways. First, we add to the literature on the determinants of inside debt. Sundaram and Yermack (2007) and Liu et al. (2014) explore firm and executive characteristics that are related to CEO inside debt. In this sense, our paper extends the results of Kang and Kim (2017) who focus on a sample of bank executives and their impact on executive compensation. Although they also provide evidence that bankers on boards have a positive effect on the level of inside debt, our study extends and provides more robust evidence of this relationship. We also document the consequence of such effect on the firm's optimal compensation structure.²

We also contribute to this literature by identifying specific characteristics of board members that affect CEO inside debt. Further, we contribute to the literature on how directors' experience impacts on firm decisions and CEO incentives. Previous research finds evidence of the relation between firm policies and director industry experience (Dass et al., 2013; Faleye et al., 2018; Nanda and Onal, 2016). Our findings suggest that professional experience of executives of commercial banks impacts on current decisions when they become directors of non-financial firms, even after they have left the position in a bank. Finally, we contribute to studies that investigate the effects of banker-directors on firm outcomes. A large body of research has found evidence that current bank executives serving on the board of directors impact on corporate decisions (Erkens et al., 2014; Ghosh, 2016; Huang

²Kang and Kim (2017) use data from 2006-2007, whereas our sample period is 2006-2014 which allows us to explore time variation in board composition; we focus on several alternative measures of inside debt, relative to inside equity and the firm's leverage, in the spirit of Jensen and Meckling (1976), whereas Kang and Kim only focus on the level of inside debt; we provide alternative approaches to address endogeneity concerns; finally, we provide evidence that bankers on the board leading to more inside debt could be beneficial not only for creditors but also shareholders.

et al., 2014; Kang and Kim, 2017; Sisli-Ciamarra, 2012). However, we are unaware of any published research that looks at the presence of independent directors who are former executives of commercial banks. Our evidence complements this literature by showing that not only current bank executives but also former bank executives serving on the board of directors impact on CEOs' compensation.

The paper proceeds as follows. In Section 2.2, we discuss literature review. Followed this section, we describe our data, construction of variables and empirical methodology in Section 2.3. Then, we provide our empirical results in Section 2.4, 2.5 and 2.6. Section 2.7 presents robustness tests and Section 2.8 concludes the paper.

2.2 Literature review

2.2.1 CEO inside debt

Jensen and Meckling (1976) theorise that an executive's compensation in the form of inside debt represents a potential method to mitigate the firm's agency costs of debt. To counteract this, Jensen and Meckling (1976) suggest that the optimal incentive structure should align the manager's personal debt-to-equity ratio with the firm's overall external capital structure. When the executive's compensation consists of both debt and equity, their incentives will vary depending on the relative debt- and equity- based compensation. Jensen and Meckling (1976) indicate that CEOs with higher levels of inside debt will manage the firm more conservatively and reduce the overall risk in ways that reduce the potential reallocation of wealth from debtholders to shareholders. Following these results, Edmans and Liu (2010) develop a theoretical framework which indicates that excessive inside debt compensation

could cause the CEO to manage the firm conservatively, and to transfer wealth from stockholders to debtholders when the probability of bankruptcy is high.

Sundaram and Yermack (2007) define an executive's inside debt—holdings which have debt-like payoffs – as constituted of pension plans and other deferred compensation. When a firm becomes insolvent, executives lose their pensions benefits, as these plans are often unfunded and unsecured, yielding executives' claims similar to those of debtholders. Several studies show that special arrangements of defined benefit pensions and deferred compensation plans have different effects on the incentive-alignment of the executive (Anantharaman et al., 2014; Eisdorfer et al., 2015; Liu et al., 2014; Wei and Yermack, 2011).

The elements of an executive's debt-like compensation have different characteristics. First, executive pension plans typically include tax-qualified plans and supplemental executive retirement plans (SERPs) (Anantharaman et al., 2014). The amount of executive pensions under SERPs do not have to be protected or funded when firm is insolvent; hence, this plan is more closely similar to unsecured corporate debt and have more debt-like compensation characteristics. Second, a deferred compensation plan, which is another form of executive debt-like compensation, is designed for employees to make discretionary investment decisions by involving them lending money back to their firms from their cash compensation at certain interest rates (Wei and Yermack, 2011). An executive deferred compensation is similar to SERPs in ways that deferred compensation will be unprotected, although these assets may or may not funded (Wei and Yermack, 2011; Anantharaman et al., 2014). However, executives will be more flexible in withdrawing deferred compensations as earlier withdraws are permitted by some firms under certain restricted circumstance

(Wei and Yermack, 2011; Anantharaman et al., 2014).

Recent studies explore the market implications of CEOs inside debt holdings. Firms whose CEOs have sizeable debt-like compensation have a positive (negative) debtholders (shareholders) reaction to firms' initial reports of CEOs' inside debt holdings after the SEC disclosure reform in 2007 (Wei and Yermack, 2011); firms with higher levels of debt-like compensation have a lower spread and have fewer restrictive covenants in debt contract (Anantharaman et al., 2014); and are more likely to reduce stock-crash risk and to have earning misstatement (He, 2015). The extant research on the role of inside debt holdings and firm policies shows that CEOs with large inside debt holdings manage firms more conservatively, and pursue less risky investment and financial policies. Cassell et al. (2012) provide evidence that firms with CEOs having large holdings of inside debt have lower volatility of future firm stock returns, R&D expenditures and financial leverage, and are more diversified and maintain higher asset liquidity. Regarding cash holding policies, Liu et al. (2014) show that CEO pensions and deferred compensation holdings are associated with higher levels of cash balances. In particular, inside debt may exacerbate the agency conflict between shareholders and debtholders as the marginal value of cash to equity holders is decreasing with the presence of CEO inside debt. In another aspect of investment policies, Phan (2014) provides evidence that CEO's inside debt holdings motivate risk-decreasing M&A activities by increasing diversifying M&As, decreasing financial leverage and using stocks as a method of payment. Recent studies provide also evidence that CEOs inside debt holdings are associated with lower dividend pay-outs (Eisdorfer et al., 2015) and higher short-maturity debt structure (Dang and Phan, 2016).

2.2.2 Banker-directors and CEO inside debt

The psychology literature shows that decision-making of individuals is shaped by experience (Nisbett and Ross., 1980). In addition, the management literature and the upper echelons theory of Hambrick and Mason (1984) state that heterogeneity of individuals will impact on personal choices and their interpretation of strategic decision-making. In addition, Hertwig et al. (2004) suggest that individuals facing risky choices will base their decisions on previous personal experiences. Therefore, the professional experience from financial institutions of banker-directors can affect their current decision-makings when sitting on the board of non-financial firms. Consistent with these arguments, a growing empirical evidence about professional experiences (or career skills) suggests that professional, or work-related, experiences of directors and managers will impact on their risk preferences and, hence, firm policies. The literature looks at time-invariant managerial styles (Bertrand and Schoar, 2003), life experience (Bernile et al., 2017), career experience (Dittmar and Duchin, 2015; Schoar and Zuo, 2017) or military experience (Benmelech and Frydman, 2015). According to this, we predict that banker-directors act in line with their executive experience. Thus, firms with banker-directors will design CEOs' compensation contracts that are more likely to be aligned with debtholders and hence use debt-like elements.

Further, the literature on the conflicts of interest between shareholders and debtholders suggests that creditors on boards do not always add value to shareholders, as they aim to maximize debtholders wealth. In particular, executives of commercial banks that provide loans to the firm acting as the firm's board members are more likely to engage in activities that are favourable to debtholders and

unfavourable to shareholders. Specially, Hilscher and Şişli-Ciamarra (2013) provide evidence that companies with creditor-directors are more likely to perform acquisitions that benefits creditors and conflicts with the interests of shareholders. In general, based on the literature on the conflicts of interests on board of directors, the directors from commercial banks potentially transfer value from shareholders to debtholders by paying CEOs with more debt-like compensations and increasing CEOs' debt incentives.

An alternative possibility is that executive commercial bank expertise on a corporate board may bring benefits to shareholders by reducing CEOs' inside debt holdings. A banker-director on a company's board monitors, provides strategic advice for managers and acts on behalf of shareholders. As such, board of directors will design executive compensation contracts that increase the wealth of shareholders, make executives increase the volatility and reduce risk-related agency conflicts (Coles et al., 2006). To the extent that banker-directors add positive value to shareholders, a growing body of the literature on the role of current creditors on boards of directors provides evidence suggesting that due to lending relationships current executive commercial bank directors may obtain private information about the firm, and therefore allow the lenders to closely monitor the firm and renegotiate whenever there are signs of adversity (Booth and Deli, 1999; Erkens et al., 2014; Sisli-Ciamarra, 2012). In turn, firm will be more likely to have larger private debt, lower cost of borrowing, and fewer covenants in debt contracts. Accordingly, under this view, banker-directors will not increase debt holdings to monitor CEOs.

The following section describes the data we use on this study and present descriptive statistics.

2.3 Data and Descriptive Statistics

2.3.1 Sample construction

Our initial sample consists of an unbalanced panel of all CEO firm-year data for Standard & Poor’s (S&P) 1500 companies for the period 2006–2014 available from ExecuComp. Since 2006 the Securities and Exchange Commission (SEC) has required listed companies to expand executive compensation disclosure about executive pensions, hence our sample period starts in 2006. Consistent with similar previous studies, we drop financial firms (SIC codes 6000-6900) from our sample.

We then match the ExecuComp list of non-financial firms with the BoardEx database to obtain board structures and director biographies. BoardEx provides information on directors and other senior employees collected from various sources including SEC filings, company press releases, company websites and news outlets. We obtain financial data from Compustat and stock prices from the Centre for Research in Security Prices (CRSP). The final sample of complete CEO- and firm-level data is an unbalanced panel of 6110 CEO-firm-years in 1,116 different firms.

2.3.2 Variable measurement

Measurement of Banker-director

We eliminate all banks incorporated outside the United States and classify a financial institution as a commercial bank in the following way. First, we follow Hilscher and Şişli-Ciamarra (2013) and classify an institution as a commercial bank if that institution is listed as a U.S. chartered commercial bank in the Federal Deposit Insurance Corporation (FDIC) list.³ Next, to ensure these institutions are com-

³Information about all institutions is retrieved from: <https://www.fdic.gov/bank/statistical/>.

mercial banks, we use primary four-digit SIC codes between 6011-6082 and 6712 provided in the Reuters/Loan Pricing Corporation’s (LPC) Dealscan database to classify a lender as a commercial bank (Jiang et al., 2010). In addition, some banks switch their business activities to bank holding companies at a certain point in time in our sample although these institutions have an SIC code outside the classified range for commercial banks. For example, Morgan Stanley and Goldman Sachs are investment banks before September 2008, and they become bank holding companies after that date. To increase the precision of our classification, we manually inspect SIC codes, read business descriptions in 10-K filings from EDGAR searches, and include the institutions in our commercial banks list only for the period during which one of their main business activities is related to the traditional banking industry. Further, we use the Chicago Fed M&A database⁴ to obtain information on bank mergers and acquisition and to reclassify the ownership data from Dealscan as in Erkens et al. (2014).

We define a director as a banker director if she meets one of two criteria. The first criterion follows Kroszner and Strahan (2001), where a director is identified as a commercial banker when she is a current executive of a commercial bank (*current executive*). The second criterion is whether the director has previous experience in a commercial bank in an executive position (*past executive*). An executive position is defined as a top management position/role based on the classifications of the BoardEx database including CEO, CFO, COO, Chairman, President, Division CEO, Division CFO, Division Chairman, Division COO, Division President, Head of Division, Regional CEO, Regional CFO, and Regional President (Custódio and

⁴This information is retrieved from: <https://www.chicagofed.org/banking/financial-institution-reports/index>.

Metzger, 2013).

We further split the *current executive* director category in two groups: *creditor banker* directors and *non-creditor banker* directors. We identify a current executive director as a creditor banker if her bank has at least one loan (as a sole lender or a lead bank in a syndicate loan) with the company where she is a director during the fiscal year, and as a *non-creditor banker* otherwise. We identify this credit relationship by matching loan information from the Dealscan database with our main sample using Compustat-Dealscan linkage table from Chava and Roberts (2008).⁵ Following Ivashina (2009) and Hilscher and Şişli-Ciamarra (2013) we classify a bank as the lead manager including the following titles: lead arranger, book runner, documentation agent, administrative agent, syndication agent, senior managing agent, managing agent, lead manager and co-manager.

Table 2.1 summarises our classification of different types of commercial bankers on the board of directors for each year from 2006 to 2014. On average, 15.9% of S&P1500 firms and 24.5% of S&P500 firms have at least one current executive banker-director. Regarding past executive directors, 28.4% of S&P1500 firms and 38.2% of S&P500 firms have at least one. 35.6% of S&P1500 firms and 45.1% of S&P500 firms have a banker director (a current or past executive) on the board. The proportion of S&P500 firms having at least one current executive in our sample is comparable to the study of Hilscher and Şişli-Ciamarra (2013) with 24.9% and 26.1% for the year 2006 and 2007. In addition, our findings are also similar to previous results from Booth and Deli (1999) with 22.2% of non-financial S&P 500 firms having

⁵Although the linkage table from Chava and Roberts only covers firms up to 2012, we extend it by manually checking and matching with Dealscan all of the firms with observations which appear only in 2013 and/or 2014 in our main dataset to prevent missing new loans for firms not previously covered.

at least one commercial banker on the board in 1990. Güner et al. (2008) similarly document that in the period 1988-2001, 21% of firms have unaffiliated bankers and 6% of firms have creditor bankers on their boards. Finally, Sisli-Ciamarra (2012) reports that 22%-27% non-financial S&P 500 firms for the year 2002-2004 have a commercial banker on their board. Besides, we find that 2.7% of S&P1500 firms have banker-directors from banks having a lending relationship with the firm, while there are 4.3% of S&P500 firms with banker-directors from banks providing loans to the firm.

[Insert Table 2.1 here]

Measurement of CEO inside debt

We use two different proxies to measure CEO relative inside debt. Our first measure, *relative executive leverage*, is constructed as the ratio of the fiscal year-end CEO inside debt (the sum of the present value of pension benefits and deferred compensation) to CEO equity holdings (the sum of the value of the stock and option portfolio) scaled by the firm's debt-to-equity ratio (Sundaram and Yermack, 2007), where the firm's debt is measured as the sum of the current and long-term debt and the firm's equity is the market value of equity:

$$\begin{aligned} k &= (D_{CEO}/D_{FIRM}) \div (E_{CEO}/E_{FIRM}) \\ &= (D_{CEO}/E_{CEO}) \div (D_{FIRM}/E_{FIRM}) \end{aligned} \tag{2.1}$$

The limitation of using the relative CEO debt-to-equity (equation 2.1) as the measure of inside debt is that this ratio is based on levels of the value of debt and equity rather than changes in these values (Wei and Yermack, 2011; Cassell et al., 2012). Wei and Yermack (2011) further explain that managers tend to hold significant amounts of stock options in their portfolios, which have limited life and convex slopes with respect to the firm value, while shares of the firm's equity have

infinite expirations and linear slopes with respect to the firm value. In addition, inside debt in the CEO portfolio is likely to have different duration compared to the firm's debt securities. Hence, to address these shortcomings, we compute *relative executive incentive* k^* as in Wei and Yermack (2011) that measures the effect of marginal changes in CEO inside debt and inside equity associated with a unit change in the firm value:

$$k^* = (\Delta D_{CEO} / \Delta D_{FIRM}) \div (\Delta E_{CEO} / \Delta E_{FIRM}) \quad (2.2)$$

Change in inside equity, ΔE_{CEO} , is measured as the CEO's total delta calculated as:

$$\Delta E_{CEO} = S + N \times \Delta N = S + \sum_{n=1} N_i \times \Delta N_i \quad (2.3)$$

where S is the number of shares held by the CEO, given that the delta of a share of stock is 1, and N_i is the number of options in tranche i and ΔN_i is the option delta for tranche i . More specifically, the CEO's 'total delta' includes the 'total share delta' S and the 'total option delta' $\sum_{n=1} N_i \times \Delta N_i$ which captures the overall change of the value of CEO equity holdings per \$1.00 change in the stock price. Following Wei and Yermack (2011), we apply the Black-Scholes option value formula to estimate ΔE_{CEO} . We apply the same procedure to construct ΔE_{FIRM} , and we use data on the total number of employee stock options outstanding, their average exercise prices and assumed average remaining life of four years for all options (Wei and Yermack, 2011). In addition, to estimate ΔD_{CEO} and ΔD_{FIRM} , we use the identical method as Wei and Yermack (2011) by simplifying the ratio of the change in CEO inside debt to the change in the firm's debt as the ratio of CEO inside debt to the firm's debt, that is:

$$(\Delta D_{CEO} / \Delta D_{FIRM}) \approx (D_{CEO} / D_{FIRM}) \quad (2.4)$$

Thus, the relative executive incentive approximately equals:

$$k^* = (D_{CEO}/D_{FIRM}) \div (\Delta E_{CEO}/\Delta E_{FIRM}) \quad (2.5)$$

Control variables

Following Sundaram and Yermack (2007) and Liu et al. (2014), we control in all our models for other documented determinants of CEO inside debt. To control for firm characteristics we include: *leverage* – long-term debt over the sum of long-term book value of debt and stockholders’ equity⁶, *liquidity constraint* – an indicator variable that equals one if the firm has negative operating cash flow and zero otherwise, *tax status* – an indicator variable for whether the firm has net operating loss carry-forwards on its balance sheet, *firm growth* – R&D expenses over total sales, *firm size* – the natural logarithm of total assets, and *firm age*. Further, we also add a range of governance variables that could influence CEO compensation by including the *board size*, *board independence* – the percentage of outside directors on the board, and *institutional ownership* – the percentage of shares held by *institutional investors*. We also control for CEO characteristics and power, such as the *CEO tenure*, *CEO age*, *CEO duality* – a dummy variable indicating whether the CEO is also the board chair, and a dummy variable indicating whether the CEO is hired from outside the firm (*external CEO*).

Summary statistics of the variables and control variables used in our main regression analysis are reported in Table 2.2 and definitions of the variables are summarised in Appendix 2.A.⁷

[Insert Table 2.2 here]

⁶As in Sundaram and Yermack (2007), we use the book value of equity to avoid a mechanical negative relationship between the leverage variable and the market value of CEO equity.

⁷In Appendix B, we present the correlation matrix between variables used in main regressions. The pairwise correlations are not large (with the maximum of 0.596 for the firm size – board size correlation) indicating there are no problems with collinearity in our regression analysis.

2.3.3 Univariate analysis

In our first test, we compare the mean of the CEO inside debt measures and all control variables for companies with banker-directors and the rest of the sample. Table 2.3 presents the results of this analysis. The univariate test shows that, in line with our expectations, CEOs of firms with a banker-director have a significantly higher amount of inside debt – higher aligned incentives with debtholders, compared to firms without banker-directors. The result holds for banker-directors who are current, as well as past bank executives.

Our data analysis also shows that bankers tend to serve on boards of large and less financially constrained firms, possibly to alleviate the concern of losing lender seniority against the bankrupt firms, in line with the results in the previous literature (Kroszner and Strahan, 2001; Hilscher and Şişli-Ciamarra, 2013).⁸ In terms of board characteristics, we observe that boards of firms with banker-directors are significantly larger. Similarly, the number of outside directors on boards of firms with banker-directors is significantly higher than those of boards without bankers, and they have lower levels of institutional ownership. Overall, firms with banker-directors differ from firms without bankers on the board across several dimensions we control for in multivariate regressions in the following section.

[Insert Table 2.3 here]

⁸When directors from banks join the board, banks can be considered as equityholders rather than debtholders when the firm goes bankrupt. Therefore, it could create the costs of lender liability. However, according to Kroszner and Strahan (2001) bankers tend to join the board of large and stable firms with a high fraction of tangible assets and low level of short-term financing in their capital structure. As a result, the costs of lender liability are likely to be unimportant.

2.4 The Relation Between Bankers on Boards and CEO Inside Debt

In this section, we study the effect of the presence of a banker on the board on inside debt holdings of the CEO in a multivariate regression setup. To perform this analysis, we estimate the following model:

$$Y_{i,t} = \alpha + \beta \text{Banker Director}_{i,t} + X_{i,t}\gamma + a_j + b_t + \varepsilon_{i,j,t} \quad (2.6)$$

The dependent variable ($Y_{i,t}$) is our proxy for CEO debt incentives (*Inside debt*) (interchangeably, *relative executive leverage* and *relative executive incentive*). $\text{Banker Director}_{i,t}$ is a dummy variable taking value of one if firm i has a specific type of banker-director on the board in year t and zero otherwise. $X_{i,t}$ is a vector of control variables including firm, CEO and corporate governance characteristics. All the variables are defined in Appendix 2.A. A positive and significant β implies that bankers on boards affect positively the levels of the CEO's debt incentives.

We use a Tobit model-approach for relative executive leverage and relative executive incentive due to the left-censored dataset at zero and a significant number of zero-valued observations for CEO inside debt, as in Sundaram and Yermack (2007). Industry (a_j) and year (b_t) fixed effects are included to control for industry characteristics and overall macroeconomic factors changing over time.⁹ Standard errors are clustered at the firm level in all regressions.

[Insert Table 2.4 - 2.5 here]

Table 2.4 presents the results of testing the association between the CEO inside debt and the presence of current or/and past executive commercial bankers on the board, as specified in model 2.6. In Table 2.4, columns 1 and 2, we find,

⁹Our method is similar to the empirical studies of the determinants of inside debt by Sundaram and Yermack (2007) and Liu et al. (2014), who also control for industry and year fixed effects.

as predicted, that β_1 is positive and significant at the 1 percent level. In terms of the economic significance, the marginal effect on the actual (or observable) value of inside debt measures reported in panel A of Table 2.5 shows that, on average, if a firm has at least one board member with executive banking experience, the CEO's relative leverage (relative incentive) is 0.249, equivalent to 21.48% with respect to the sample mean, (0.170 or 14.67% with respect to the sample mean) higher than those ratios for CEOs of firms without any banker-director, which is equivalent to 15.93% (14.67%) of the sample mean.¹⁰ The effect is economically large.

We look at our alternative explanations for the relation between CEO inside debt and banker-directors in columns 3 to 8 of Table 2.4. First, we decompose the banker-director dummy into current executive and past executive banker-directors, and we then analyse separately the effect of having each type of directors on CEO inside debt. We aim to disentangle whether this relation is driven by a potential conflict of interest when a person linked with the credit sector is elected to represent equityholders, or by professional experiences impacting banker-directors' behaviour. If the first explanation dominates, we expect a stronger relation between CEO inside debt and directors who are current bank executives, while the other explanation predicts no difference between current and past executives. The results show that both types of directors — current and past executives — have a positive and significant effect on the level of CEO inside debt (columns 3 and 4 of Table 2.5). Furthermore, the insignificant results of the F-test reported in panel B of Table 2.5 suggests that there is no statistical difference in the association between the two types of banker-directors with our inside debt measures, suggesting that the second explanation —

¹⁰As reported in Table 2.2, the overall sample mean of the relative executive leverage (relative executive incentive) is 1.563 (1.159).

the impact of experience rather than the conflict of interest dominates.

Next, the split of current bank executives into *creditor bankers* and *non-creditor bankers* yields also positive and statistically significant coefficients for both types (columns 5 to 8 of Table 2.4). The magnitude of the coefficients on the presence of a *creditor banker* is larger than *non-creditor banker*. Our findings are again in line with the argument that directors' decisions on the board are affected by their work-related experiences. Even when firms do not have any lending relationship with the directors' banks, the positive association between banker-directors and CEO inside debt still exists.¹¹

Among control variables, we find that firms with few growth opportunities and older CEOs pay more friendly debt-like compensation, consistent with previous studies (Sundaram and Yermack, 2007; Liu et al., 2014; Campbell et al., 2016). In particular, we find a positive and statistically significant relationship between CEO ages and the main dependent variables (*relative executive leverage*, *relative executive incentives*). Moreover, we also observe a negative relationship between R&D expenditures (growth opportunity) and CEO inside debt measures as in Sundaram and Yermack (2007) and Liu et al. (2014). Besides, although we do not find a statistically significant relationship between firm size and CEO inside debt, we document a positive and statistically significant association between board size (board independence) and CEO inside debt, suggesting that firms with large board size¹² and a high number of independent directors pay CEOs with more inside debt. We also find

¹¹The rest of controls are in line with previous studies such as Sundaram and Yermack (2007) and Campbell et al. (2016), except for the firm size (Ln(Total Assets)), which is not significant in our sample. This is driven by the inclusion of Board Size, which subsumes the firm size effect. In unreported results, we repeat our tests without Board Size, and the coefficients of Ln(Total Assets) become positive and significant, in line with previous studies.

¹²When we drop board size variable, we find a positive and statistically significant relationship between firm size and CEO inside debt. Therefore, the insignificant results could come from the relatively high correlation between firm size and board size (0.596).

a statistically significant and negative relationship between leverage and CEO inside debt. We explain the reason for this is that we rely on market value of equity for the main dependent variables. However, based on Sundaram and Yermack (2007), we use the book value instead of the market value of equity to construct leverage variable (*Leverage*), which cause a mechanical negative association (Campbell et al., 2016).

Finally, considering CEO characteristics, powerful CEOs have a preference for debt-like compensation, holding all else constant (Liu et al., 2014).¹³ In line with Liu et al. (2014) and Campbell et al. (2016), we find that CEO tenure has a negative relationship with inside debt, suggesting that CEO equity wealth increases when CEO tenure increases and this part of the compensation dominates pensions and deferred compensation. However, different from the prior finding (Sundaram and Yermack, 2007), we find a negative and statistically significant association between external CEOs and CEO inside debt variables. This could come from the way we construct our variables. In particular, we scale CEOs' debt-to-equity by firms' debt-to-equity. Therefore, although external CEOs can receive higher amount of pensions and deferred compensations as they are likely to negotiate their employment contracts (Sundaram and Yermack, 2007), firms still pay external CEOs with relatively high equity to prevent both moral-hazard and adverse-selection problems (Palomino and Peyrache, 2013).

¹³Liu et al. (2014) note that powerful CEOs may also influence their compensation to reduce undesirable aspects of pensions and deferred compensation. Therefore, the direction of CEO power is not clear.

2.5 The Allocation of Bankers to Firm Boards

We show in our tests above that there is a positive relation between directors with experience as commercial bank executives and CEO inside debt holdings. However, previous research on banker-directors shows that bankers are not randomly selected into firms' boards (Booth and Deli, 1999; Kroszner and Strahan, 2001). Hence, it is possible that the firm's characteristics, such as CEO compensation, lead to an increase of the likelihood of a banker-director appointment. We perform various tests to address these endogeneity concerns.

For our first test we estimate a Heckman two-step model to control for self-selection bias. Based on the findings of several studies (Booth and Deli, 1999; Kroszner and Strahan, 2001; Byrd and Mizruchi, 2005; Santos and Rumble, 2006; Sisli-Ciamarra, 2012; Hilscher and Şişli-Ciamarra, 2013; Kang and Kim, 2017), we include in our first step regression controls for firm size, leverage, market-to-book ratio, stock return volatility, the square of stock return volatility, probability of bankruptcy, commercial credit rating, a commercial credit rating dummy, tangible assets, short-term debt, board size, percentage of outsiders on the board and institutional ownership. Similar to the previous literature, we take a three-year average of the explanatory variables as the board composition adjusts to changes in the firm's environment over a certain period. Furthermore, to reduce the likelihood of having a small sample size, we collect our data for the Heckman two-step approach from 2004.¹⁴ We also include in the first stage a variable capturing the number of commercial banks headquartered in the same five-digit ZIP as

¹⁴Our sample starts from 2006. Therefore, 2004 is the starting year for us to collect data and take a three-year average of the explanatory variables used in the Heckman model.

the firm.¹⁵¹⁶ We assume that a firm has a higher probability of appointing an executive director of a commercial bank to its board if it is located close to commercial banks' headquarters. Our exclusion restriction is that the density of bank headquarters around the firm's headquarters is plausibly uncorrelated with CEO compensations or incentives. The results of the first-stage selection equation reported in Table 2.6 show that the coefficient of the commercial bank headquarter density is positive and statistically significant, in line with our expectations. Further, consistent with previous studies, commercial executive bankers sit on boards of large and more stable firms with larger boards and lower ratios of short-term to long-term debt. As such, the analysis confirms that bankers tend to serve on the boards of firms in which the lender liability is relatively less important to lenders.

[Insert Table 2.6 here]

Table 2.7 presents the results of the second-stage model. The inverse Mill's ratio *Lambda* calculated from the first-stage regression is statistically significant in all models. Our main variables of interest continue to remain positive and significant after controlling for potential self-selection bias, indicating that causality goes from the different types of bankers on boards to CEO inside debt.

[Insert Table 2.7 here]

Our second test to mitigate endogeneity concerns is propensity-score matching (PSM). PSM ensures that our conclusions are not driven by confounding observable factors. For each firm-year we estimate the conditional odds of having a banker-director using a logistic regression model.¹⁷ Subsequently, we match firms with

¹⁵Due to the relatively constant in the information about firm headquarters, we do not take the average numbers of this variable

¹⁶Descriptive statistics of these variables are reported in Appendix 2.C.

¹⁷The AUC test for the area under the Receiver Operating Characteristic curve of our logistic regressions on presence of current executive banker-directors and on presence of past executive

banker-directors to those firms without banker-directors that have closest odds, and apply a maximum caliper difference of 0.0001, one-to-one nearest neighbour matching without replacement as in Erkens et al. (2014). Table 2.8 presents the results of the logit model to estimate the probability of having a banker-director for our propensity-score matching procedure.

[Insert Table 2.8 here]

Table 2.9 presents the results using our original model specification with the PSM sample. We find that directors with executive banking experience have a significant effect on the CEO inside debt across all specifications.

[Insert Table 2.9 here]

As a final set of tests for the causal relationship between bankers on boards and inside debt, we use time-variations in board composition to explore whether the appointment of a banker to the board is associated with changes in the CEO compensation structure. For our first test, we hand-collect information on banker appointments for firms without bankers on boards in the previous five years. We then compare the levels of CEO's inside debt before and after the banker appointment. If these directors have a positive effect, the level of CEO's inside debt should increase after the appointment. We present our results in Table 2.10. Univariate tests reported in panel A of Table 2.10 show that, on average, CEO inside debt is higher after banker-directors join the board. Panel B shows multivariate regression tests for the subsample of firms appointing banker directors. We take different time frames for our regressions including years $[-1; 0]$, $[-1; 1]$, $[-2; 2]$ and $[-3; 3]$ relative

banker-directors are 0.7379 and 0.7469, respectively. These tests exceed the 0.7 cut-off level of discrimination, indicating the accuracy of our logistic regressions for distinguishing between current-banker firms and non-current-banker firms, and between past-banker firms and non-past-banker firms (Erkens et al., 2014).

to the banker appointment year (year 0). *Post* is a dummy variable indicating the period after the appointment of the banker director. We find that, on average, CEO inside debt increases significantly two years after a banker-director joins the board. *Post* is statistically significant and positive when comparing two and three years before and after appointing a banker. We interpret these results as further evidence that firms with banker directors are more likely to pay higher CEO inside debt after bankers join the firms.¹⁸

[Insert Table 2.10 here]

To further control for the potentially endogeneity of the matching of bankers on boards and firms with high inside debt we look at a particular case of time-variation of board composition as inferred from the findings of Ferreira et al. (2018) in the context of covenant violations. The literature on the impact of covenant violations on firm policies suggests that if a firm violates a covenant, corporate control rights shift to creditors (Chava and Roberts, 2008; Nini et al., 2009, 2012). Further, following the violation, the proportion of independent directors increases, and these newly appointed directors are likely to be connected to creditors (Ferreira et al., 2018). Therefore, covenant violation offers a setting to explore whether higher levels of CEO inside debt holdings are driven by newly appointed banker directors after covenant violations.

We follow Chava and Roberts (2008) and use loan covenants from the Dealscan database to identify whether a firm violates a debt covenant in a financial quarter. In addition, if a firm has multiple loan deals that overlap, we identify a relevant

¹⁸A potential issue with this test is that the CEO's inside debt grows monotonically over time, irrespective of the appointment of a banker on the board. To control for this we include the CEO's tenure as a control in all our tables, and use relative incentives (inside debt *relative to* inside equity, and *scaled by* the firm leverage) as a proxy for inside debt as our main dependent variable to minimize this concern.

covenant to be the tightest unless it corresponds to a refinancing deal as in Chava and Roberts (2008). Further, as covenants apply to all tranches in a package, we rearrange the time period over which a firm is bound by the earliest loan start date and the latest loan end date in all of the loans within a package. If the value of the firm's accounting variables breaches the covenant thresholds on net worth, tangible net worth or current ratio, we classify the firm as having a covenant violation in that period. While the covenant violation indicator is in quarterly data, CEO compensation is reported on an annual basis. Therefore, we define covenant violation firms in a fiscal year if the firm records a covenant breach in any quarter of the year.

We next analyse whether banker-directors newly appointed following covenant violations impact on CEO inside debt. Following Ferreira et al. (2018), we focus on a subsample of firms experiencing first covenant violations to avoid overlapping observations for the same firms. *New appointment* is a dummy variable indicating whether a covenant violation firm appoints a new banker-director between year $t=0$ (the year in which the firm violates a covenant), and year $t+2$ (two years after the violation). Furthermore, to identify the real impact of new banker-directors, we only focus on firms without any bankers on the board before the first covenant violation. We also create a dummy variable, *After*, that indicates years $t+2$ to $t+4$ after firm experiences the first violation ($t=0$). We take years $t-3$, $t-2$ and $t-1$ as the period before the covenant violation and year $t+2$, $t+3$ and $t+4$ as the period after the covenant violation.

Table 2.11, panel A, presents differences in observable characteristics between firm-years with newly appointed directors and the rest of the sample in the pre-

treatment year. Univariate comparisons show no statistically significant differences between the two groups. Columns 1 and 2 of panel B show the effect of newly appointed bankers on boards on CEO inside debt following a covenant violation. We use a similar approach to Ferreira et al. (2018) and control for firm and year fixed effects and firm size. Consistent with our previous findings, the results suggest that CEO inside debt increases in years $t+2$ to $t+4$ after the first covenant violation in firms with a new banker-director. We repeat the test using a Tobit model, including industry and year fixed effects. Columns 3 and 4 of panel B show that CEO debt incentives increase after the first violation for firms appointing new banker-directors.

[Insert Table 2.11 here]

Overall, our tests consistently show that firms with banker-directors on their boards pay CEOs with more inside debt.

2.6 Why Shareholders Appoint Banker-Directors?

Our results indicate that bankers on boards lead to compensation structures that are debtholder-friendly and hence potentially detrimental to shareholders. We study this tension in two ways. First, we analyse whether bankers on boards lead to an ‘optimal’ compensation structure that can ultimately benefit shareholders. Second, we look at the potential monitoring role of bankers on boards through granting managers inside debt.

Jensen and Meckling (1976) argue that equity-holders ultimately bear the agency cost of equityholders—debtholders conflicts and it is in equityholders’ interests to incentivize managers to respect debtholders’ interests. They propose that in the optimum the manager’s debt-to-equity exposure is equal to the firm’s external

debt-to-equity financing structure. Edmans and Liu (2010) formalize and develop this argument further to show that aligning the manager’s debt-to-equity incentives with the firm’s capital structure is usually inefficient and while equity bias is beneficial to induce managerial effort, a higher likelihood of bankruptcy and considerations regarding the liquidation value make debt bias desirable. Empirical studies by Wei and Yermack (2011) and Campbell et al. (2016) confirm that shareholders benefit from an optimal ratio of CEO’s inside debt-to-equity and both too low and too high inside debt incentives lead to negative stock price reactions. In particular, Campbell et al. (2016) build on theoretical insights from Edmans and Liu (2010) to empirically estimate the optimal inside debt-to-equity ratio for each firm and find evidence that stock prices respond positively to changes in inside debt that move it closer to the predicted target. This is consistent with the argument that shareholders bear the agency cost of debt.

To analyse whether the increase in inside debt associated with banker-directors documented in this paper leads to the optimal compensation structure from the shareholders’ perspective, we replicate the empirical setup in Campbell et al. (2016) in Table 2.12. *Deviation from optimum* is the difference between the predicted optimal value of CEO inside debt and actual inside debt. Its estimated negative coefficient indicates that firms grant inside debt to move it up or down closer to the optimum. In Table 2.13, we interact the deviation variable with a banker-director indicator used in our earlier tests. The estimated coefficients of the interaction term are all negative and statistically significant which shows that a banker on the board increases the speed of convergence to the optimum. We conclude that the positive effect of banker-directors on inside debt we document leads to improvements in the

structure of executive incentives which is ultimately expected to benefit shareholders, as the optimal level of inside debt reduces costs associated with shareholders-bondholders agency conflicts.

[Insert Table 2.12 - 2.13 here]

Links with the banking industry or cognitive biases may produce incentives for bankers on boards to act in the interest of debtholders. A consequence of these incentives could be a higher level of monitoring of the management of the firm, which could also benefit shareholders. To analyse this assumption in our context, we investigate whether the firm's corporate governance quality influences the relationship between banker-directors and CEO inside debt.

As a proxy for the monitoring mechanism we use the percentage of shares held by institutional investors (*Institutional Ownership*) and the Gompers et al. (2003) (2003) index (*G-Index*). The G-Index¹⁹ is based on the number of anti-takeover provisions included in the firm's charter. A higher percentage of institutional investors indicates better monitoring by shareholders and better corporate governance quality. A higher G-index indicates a lower corporate governance quality and fewer shareholder rights. We split the sample into subsamples based on the median of each proxy and estimate our models linking banker-directors and CEO inside debt for each subsample separately. Results of these tests are presented in Table 2.14. The results show that coefficients of the presence of banker-directors are positive and statistically significant only for below-median institutional holdings. In a similar fashion, we find a positive and significant relationship for the above-median G-Index group. Overall, the findings suggest that banker-directors are more

¹⁹We collect the G-Index from the website of the authors (<http://faculty.som.yale.edu/andrewmetrick/data.html>). Similar to other papers, we use a time-invariant G-index based on 2006 data for our tests.

likely to have a higher impact on CEO inside debt when firms' governance mechanism are of lower quality, reinforcing the monitoring role of creditors on the board.

[Insert Table 2.14 here]

2.7 Robustness tests

2.7.1 Controlling for Firm Performance and Firm Risk

Our main results presented above suggest that banker-directors impact positively on CEO inside debt incentives. However, previous evidence suggests that inside debt holdings are also linked to firm performance and firm risks. To control for the potential omitted variables, we use ROA and the standard deviation of ROA to deal with this concern. The results presented in Appendix 2E.1 show that our main variables of interest are still statistically significant at the 5 percent level or better.

2.7.2 Using OLS Model

We use Tobit regressions to study the relation between banker-directors and CEO inside debt. For robustness, we also re-estimate our model 2.6 using an OLS specification. As shown in Table 2E.2, we find that the results remain unchanged.

2.7.3 Alternative Measure of CEO Inside Debt Incentives

Following Cassell et al. (2012) and Phan (2014), we construct an indicator variable which takes the value of one if the relative executive leverage (or relative executive incentive) exceeds one in the spirit of the arguments in Jensen and Meckling (1976), and it takes the value of zero otherwise. The results in Table 2E.3 show

that our results are robust to using these alternative measures.

2.7.4 An example of the association between the presence of banker-director and CEO inside debt

In 2008, Norfolk Southern Corporation, one of S&P500 firms, appointed Ms. Karen N.Horn as an independent director. She had experience in different positions in banking sectors such as chair and CEO of Bank One, Cleveland, N.A., president of Federal Reserve Bank of Cleveland, senior managing director and head of international private banking Bankers Trust Company, and vice president of First National Bank of Boston. We observe that pension funds of the CEO, Charles W. Moorman IV, has been increased from \$5,960.108 thousand in 2007 to \$14,184 thousand in 2010, and relative leverage increase from 0.875 to 1.253 in 2010. Although it is clear that there are many unobservable characteristics that lead to the increase in CEO inside debt and ours focus on the relation between firms with banker-directors and CEO's inside debt holdings, rather than concentrates on how each individual director impacts on CEO incentives, this example shows the general association between the presence of banking experience directors and CEO inside debt.

2.8 Conclusions

CEO inside debt is a potential tool to give firm executives incentives to act in a way that respects debtholder interests and hence reduces the conflict of interest between debtholders and shareholders (Jensen and Meckling, 1976). In this paper we test if the presence of a commercial banker on the firm's board has an impact on the level of the CEO's debt-like compensation. Banker-directors can push for

higher CEO inside debt for two reasons. First, even though they are elected by shareholders, their links with banking can make them act in debtholders' interest (*the conflict of interest effect*). Second, their experience in commercial banking can shape their decision making and, intentionally or not, can make them act in a debtholder-friendly way when the board chooses the firm's compensation policy (*the experience effect*). We find that firms with a banker-director compensate their CEOs with higher inside debt relative to equity. This result is robust to different specifications and controls for endogeneity. We shed light on the drivers of the relation and find evidence to support the experience effect as we document that directors who are current as well as past bank executives, and also directors from banks which provide loans as well as directors from unrelated banks have a positive effect on CEO inside debt.

Previous literature documents that higher levels of CEO inside debt lead to less risky firm policies that benefit debtholders (Cassell et al., 2012; Phan, 2014; Liu et al., 2014; Eisdorfer et al., 2015; Dang and Phan, 2016). While, as argued by Jensen and Meckling (1976), shareholders ultimately bear the cost of the conflict of interest between debtholders and shareholder and can benefit from more debtholder-friendly policies, an excessive level of inside debt can be detrimental to shareholders' interests. Based on theoretical insights in Jensen and Meckling (1976) and Edmans and Liu (2010) we develop a further test to understand whether banker-directors move CEO inside debt to the level that is optimal for both debtholders and shareholders. We find that this is indeed the case and we document that the presence of a commercial-banker on the firm's board speeds up the level of convergence to the optimum.

Overall, our study provides new evidence on the factors that shape CEO inside debt compensation and helps further our understanding of how not only current but also previous banking experience of independent directors affects CEO incentives.

2.9 Tables of Chapter 2

Table 2.1 – The percentage of firms with a banker-director

This table reports the percentage of companies with at least one director with executive experience in a commercial bank. Current Executive is a dummy that equals 1 if the firm has at least one board member who is a current executive in a commercial bank. Current Creditor Banker is a dummy that equals 1 if the firm has at least one board member who is a current executive in a commercial bank that has at least one loan to the company at the end of the fiscal year as a sole lender or as a lead arranger in a syndicate. Past Executive is a dummy that equals 1 if the firm has at least one board member who is a former executive in a commercial bank. Banker Director is a dummy that equals 1 if the firm has at least one board member who is a current or previous executive in a commercial bank.

	S&P 1500				S&P 500			
	Current Executive	Current Creditor	Past Executive	Banker Director	Current Executive	Current Creditor	Past Executive	Banker Director
2006	0.160	0.024	0.285	0.353	0.216	0.041	0.351	0.412
2007	0.164	0.024	0.272	0.353	0.239	0.030	0.348	0.433
2008	0.170	0.028	0.274	0.357	0.257	0.042	0.379	0.456
2009	0.166	0.031	0.285	0.358	0.257	0.053	0.386	0.457
2010	0.155	0.026	0.285	0.353	0.257	0.043	0.391	0.464
2011	0.158	0.025	0.289	0.359	0.247	0.041	0.390	0.455
2012	0.156	0.022	0.286	0.356	0.244	0.038	0.381	0.447
2013	0.153	0.028	0.283	0.354	0.236	0.047	0.384	0.448
2014	0.152	0.032	0.297	0.362	0.243	0.052	0.406	0.466
2006-2014	0.159	0.027	0.284	0.356	0.245	0.043	0.382	0.451
Observations	6110				2282			

Table 2.2 – Descriptive statistics of main dependent variables and control variables

Descriptive statistics are based on a sample of 1,116 non-financial S&P 1500 firms from 2006-2014 (6110 CEO-firm-year observations). *Executive Debt to Equity* is the ratio of CEO inside debt (the sum of accumulated pension benefits and deferred compensation) and CEO inside equity (share and option holdings). *Relative Executive Leverage* is the ratio of the CEO's debt-to-equity scaled by the firm's debt-to-equity ratio. *Relative Executive Incentive* is the ratio of the marginal change in the value of CEO inside debt holding to the marginal change in CEO inside equity holdings given the change in firm value, scaled by the firm's respective ratio. *Relative Executive Leverage > 1 dummy* (*Relative Executive Incentives > 1 dummy*) is an indicator variable for whether the relative executive leverage (incentive) ratio exceeds 1. *Ln (Total Assets)* is natural log of total assets. *Leverage* is long-term debt over the sum of long-term debt and the book value of stockholders' equity. *R&D expenses/Sales* is ratio of research and development expenses to sales. *Liquidity constraint* represents an indicator variable that equals 1 if the firm has negative operating cash flow. *Tax status* is indicator variable for whether the firm has net operating loss-carry forwards on its balance sheet. *Firm age* is the number years since the firm was founded. *CEO Tenure* is the number of years the CEO has served in this position. *External CEO* is a dummy indicator variable for whether CEO is hired from outside the firm. CEO duality is an indicator for whether the CEO is also the board chair. *CEO Age* is the age of the CEO. *Board size* is the number of directors sitting on the board. *Board Independence* is the fraction of non-executive directors on the board. *Institutional ownership* is the fraction of shares held by institutional investors.

	N	Mean	Median	Min	Q1	Q3	Max	St dev	Skewness
Executive Debt to Equity	6110	0.294	0.097	0.000	0.000	0.394	2.396	0.435	2.047
Relative Executive Leverage	6110	1.563	0.426	0.000	0.000	1.743	11.378	2.584	2.231
Relative Executive Incentive	6110	1.159	0.323	0.000	0.000	1.281	8.189	1.913	2.231
Relative Executive Leverage >1 dummy	6110	0.359	0.000	0.000	0.000	1.000	1.000	0.48	0.586
Relative Executive Incentive >1 dummy	6110	0.298	0.000	0.000	0.000	1.000	1.000	0.457	0.886
Ln (Total Assets)	6110	8.129	8.012	3.791	7.052	9.078	13.59	1.486	0.347
Leverage	6110	0.339	0.320	0.000	0.165	0.474	1.571	0.25	1.302
R&D expenses/Sales	6110	0.031	0.000	0.000	0.000	0.031	0.214	0.057	2.072
Liquidity constraint	6110	0.039	0.000	0.000	0.000	0.000	1.000	0.194	4.743
Tax status	6110	0.648	1.000	0.000	0.000	1.000	1.000	0.477	-0.622
Firm age	6110	31.305	25.144	1.416	15.515	41.614	89.06	20.617	1.049
CEO Tenure	6110	7.860	6.000	0.005	2.992	10.422	51.118	6.879	1.806
External CEO	6110	0.229	0.000	0.000	0.000	0.000	1.000	0.42	1.288
CEO Duality	6110	0.534	1.000	0.000	0.000	1.000	1.000	0.499	-0.136
CEO Age	6110	56.224	56.000	36.000	52.000	60	87.000	6.320	0.2660
Board Independence	6110	0.797	0.818	0.000	0.727	0.889	1.000	0.108	-1.072
Board Size	6110	9.453	9.000	4.000	8.000	11.000	23.000	2.109	0.396
Institutional Ownership	6110	0.660	0.759	0.000	0.584	0.878	2.015	0.331	-1.013

Table 2.3 – Comparisons of firms with and without banker-directors

This table shows comparisons of means of variables for firms with directors with banking experience to firms without banker directors, for the sample of 1,116 firms for the 2006-2014 period. *Current Executive* is a dummy that equals 1 if the firm has at least one board member who is a current executive in a commercial bank. *Past Executive* is a dummy that equals 1 if the firm has at least one board member who is a former executive in a commercial bank. *Banker Director* is a dummy that equals 1 if the firm has at least one board member who is a current executive or a previous executive in a commercial bank. *Executive Debt to Equity* is the ratio of CEO inside debt (the sum of accumulated pension benefits and deferred compensation) and CEO inside equity (share and option holdings). *Relative Executive Leverage* is the ratio of the CEO's debt-to-equity scaled by the firm's debt-to-equity ratio. *Relative Executive Incentive* is the ratio of the marginal change in the value of CEO inside debt holding to the marginal change in CEO inside equity holdings given the change in firm value, scaled by the firm's respective ratio. *Relative Executive Leverage > 1 dummy* (*Relative Executive Incentives > 1 dummy*) is an indicator variable for whether the relative executive leverage (incentive) ratio exceeds 1. All other variables are defined in Table 2 or Appendix A. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

	Current Executive			Past Executive			Banker Director		
	No	Yes	Difference	No	Yes	Difference	No	Yes	Difference
Executive Debt to Equity	0.272	0.413	-0.141***	0.244	0.421	-0.176***	0.234	0.403	-0.169***
Relative Executive Leverage	1.502	1.884	-0.383***	1.435	1.881	-0.446***	1.424	1.814	-0.391***
Relative Executive Incentive	1.124	1.343	-0.219***	1.083	1.347	-0.264***	1.073	1.313	-0.240***
Relative Executive Leverage >1 dummy	0.341	0.454	-0.113***	0.323	0.450	-0.127***	0.318	0.434	-0.116***
Relative Executive Incentive >1 dummy	0.285	0.365	-0.080***	0.271	0.364	-0.0931***	0.267	0.353	-0.0856***
Ln (Total Assets)	7.975	8.944	-0.969***	7.882	8.753	-0.872***	7.838	8.655	-0.817***
Leverage	0.325	0.414	-0.089***	0.314	0.403	-0.089***	0.304	0.402	-0.097***
R&D expenses/Sales	0.033	0.02	0.014***	0.037	0.018	0.019***	0.038	0.019	0.020***
Liquidity constraint	0.042	0.024	0.019***	0.043	0.029	0.014**	0.044	0.03	0.014***
Tax status	0.661	0.585	0.076***	0.667	0.601	0.066***	0.671	0.608	0.062***
Firm age	30.050	37.928	-7.877***	29.050	36.983	-7.933***	28.816	35.799	-6.983***
CEO Tenure	7.883	7.742	0.141	8.237	6.912	1.325***	8.145	7.346	0.800***
External CEO	0.241	0.165	0.076***	0.245	0.190	0.055***	0.255	0.184	0.071***
CEO Duality	0.520	0.609	-0.090***	0.527	0.552	-0.025*	0.524	0.553	-0.029**
CEO Age	56.183	56.442	-0.259	56.202	56.280	-0.079	56.157	56.345	-0.188
Board Independence	0.795	0.804	-0.008**	0.789	0.816	-0.027***	0.790	0.809	-0.020***
Board Size	9.258	10.483	-1.225***	9.105	10.328	-1.222***	9.042	10.194	-1.152***
Institutional Ownership	0.666	0.628	0.038***	0.668	0.638	0.030***	0.672	0.638	0.034***
Observations	5137	973		4374	1736		3932	2178	

Table 2.4 – The presence of banker-directors and inside debt

This table reports regressions examining whether having a director with banking experience impacts on CEO inside debt. *Current Executive* is a dummy that equals 1 if the firm has at least one board member who is a current executive in a commercial bank. *Past Executive* is a dummy that equals 1 if the firm has at least one board member who is a former executive in a commercial bank. *Banker Director* is a dummy that equals 1 if the firm has at least one board member who is a current executive or a previous executive in a commercial bank. All other variables are defined in Table 2 or Appendix A. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

	(1) Relative Executive Leverage	(2) Relative Executive Incentive	(3) Relative Executive Leverage	(4) Relative Executive Incentive	(5) Relative Executive Leverage	(6) Relative Executive Incentive	(7) Relative Executive Leverage	(8) Relative Executive Incentive
Banker Director	0.364*** (0.001)	0.249*** (0.003)						
Current Executive			0.256* (0.055)	0.189* (0.060)				
Past Executive			0.271** (0.021)	0.175** (0.046)	0.259** (0.027)	0.167* (0.056)		
Creditor Banker					0.453* (0.053)	0.329* (0.062)	0.537** (0.024)	0.383** (0.031)
Non-Creditor Banker					0.265* (0.063)	0.192* (0.075)	0.323** (0.022)	0.229** (0.031)
CEO Tenure	-0.039*** (0.000)	-0.027*** (0.000)	-0.038*** (0.000)	-0.027*** (0.000)	-0.038*** (0.000)	-0.027*** (0.000)	-0.039*** (0.000)	-0.027*** (0.000)
CEO Duality	0.349*** (0.001)	0.250*** (0.002)	0.336*** (0.002)	0.241*** (0.003)	0.333*** (0.002)	0.239*** (0.003)	0.324*** (0.003)	0.233*** (0.004)
External CEO	-0.630*** (0.000)	-0.470*** (0.000)	-0.635*** (0.000)	-0.474*** (0.000)	-0.629*** (0.000)	-0.469*** (0.000)	-0.633*** (0.000)	-0.472*** (0.000)
CEO Age	0.040*** (0.000)	0.032*** (0.000)	0.040*** (0.000)	0.032*** (0.000)	0.040*** (0.000)	0.032*** (0.000)	0.041*** (0.000)	0.032*** (0.000)
Ln (Total Assets)	0.065 (0.198)	0.02 (0.591)	0.06 (0.239)	0.017 (0.660)	0.059 (0.250)	0.016 (0.678)	0.067 (0.185)	0.021 (0.573)
Leverage	-1.945*** (0.000)	-1.477*** (0.000)	-1.933*** (0.000)	-1.469*** (0.000)	-1.941*** (0.000)	-1.474*** (0.000)	-1.924*** (0.000)	-1.464*** (0.000)
R&D expenses/Sales	-3.170** (0.044)	-2.553** (0.031)	-3.246** (0.039)	-2.610** (0.027)	-3.264** (0.038)	-2.624** (0.026)	-3.482** (0.026)	-2.763** (0.019)
Liquidity constraint	-0.288 (0.130)	-0.177 (0.234)	-0.284 (0.136)	-0.174 (0.244)	-0.274 (0.147)	-0.167 (0.259)	-0.269 (0.156)	-0.164 (0.270)
Tax status	-0.085 (0.422)	-0.063 (0.420)	-0.081 (0.443)	-0.061 (0.441)	-0.083 (0.434)	-0.062 (0.432)	-0.082 (0.443)	-0.061 (0.439)
Firm age	0.013*** (0.000)	0.009*** (0.000)	0.013*** (0.000)	0.009*** (0.000)	0.013*** (0.000)	0.009*** (0.000)	0.013*** (0.000)	0.009*** (0.000)
Board Independence	2.021*** (0.000)	1.508*** (0.000)	2.035*** (0.000)	1.521*** (0.000)	2.051*** (0.000)	1.532*** (0.000)	2.132*** (0.000)	1.584*** (0.000)
Board Size	0.127*** (0.000)	0.099*** (0.000)	0.126*** (0.000)	0.098*** (0.000)	0.124*** (0.000)	0.097*** (0.000)	0.129*** (0.000)	0.100*** (0.000)
Institutional Ownership	0.192 (0.753)	0.063 (0.891)	0.22 (0.719)	0.083 (0.857)	0.23 (0.706)	0.09 (0.845)	0.182 (0.767)	0.059 (0.899)
Observations	6110	6110	6110	6110	6110	6110	6110	6110
Pseudo R^2	0.084	0.090	0.084	0.090	0.084	0.091	0.083	0.090
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Method	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit

Table 2.5 – Marginal effects on actual inside debt

This table reports the marginal effects on actual inside debt based on the regressions examining whether having a director with banking experience impacts on CEO inside debt. All specifications include industry and year dummies. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (**), 0.05 (*), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Relative Executive Leverage	Relative Executive Incentive	Relative Executive Leverage	Relative Executive Incentive	Relative Executive Leverage	Relative Executive Incentive	Relative Executive Leverage	Relative Executive Incentive
Panel A: Marginal regressions								
Banker Director	0.249*** (0.001)	0.170*** (0.003)						
Current Executives			0.175* (0.055)	0.129* (0.060)				
Past Executives			0.185** (0.022)	0.119** (0.046)	0.177** (0.028)	0.114* (0.056)		
Creditor Banker					0.301* (0.054)	0.224** (0.062)	0.367** (0.025)	0.261** (0.032)
Non-Creditor Banker					0.181* (0.063)	0.131* (0.075)	0.221** (0.022)	0.157** (0.031)
Panel B: H0 :								
			Current = Past		Creditor = Non-Creditor		Creditor = Non-Creditor	
F-test			0.01	0.01	0.53	0.50	0.66	0.61
Prob > F			0.938	0.921	(0.468)	(0.480)	(0.417)	(0.434)

Table 2.6 – Probability of having a banker-director – Heckman first stage

This table reports the regression examining the likelihood that the firm has at least one director with current or past executive experience in a commercial bank. *Bank density* is the number of commercial banks headquartered in the same five-digit zip code as the firm. Other characteristics are as in Appendix A. The specification includes industry and year dummies. Industry dummies are based on Fama-French 48 industry classification. The constant is estimated but not reported. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

	Banker Director
Bank density	0.315** (0.048)
Short-term debt/Long-term debt	-0.002*** (0.001)
Ln (Total Assets)	-0.044 (0.555)
Leverage	0.565*** (0.002)
PPE	0.044 (0.770)
Market-to-book	-0.005 (0.651)
Commercial credit rating	-0.034* (0.059)
Credit rating dummy	-0.179 (0.358)
Bankruptcy risk	-1.071 (0.637)
Stock return volatility	-1.791* -0.053
Stock return volatility square	1.485* -0.097
Institutional ownership	-0.234 (0.324)
Board independence	0.472 (0.243)
Board size	0.109*** (0.000)
Observations	6090
Pseudo R2	0.119
Year FE	Yes
Industry FE	Yes
Method	Probit

Table 2.7 – The presence of banker-directors and inside debt – Heckman second stage

This table reports regressions examining whether having a director with banking experience impacts on CEO inside debt controlling for self-selection bias by including the inverse Mills ratio from the first-stage probit regression reported in Table 5. p-values are reported in parentheses. All variables are defined in Table 2 or Appendix A. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

	(1) Relative Executive Leverage	(2) Relative Executive Incentive	(3) Relative Executive Leverage	(4) Relative Executive Incentive	(5) Relative Executive Leverage	(6) Relative Executive Incentive	(7) Relative Executive Leverage	(8) Relative Executive Incentive
Panel A								
Banker Director	0.355*** (0.002)	0.243*** (0.004)						
Current Executive			0.240* (0.072)	0.178* (0.076)				
Past Executive			0.265** (0.025)	0.171* (0.051)	0.251** (0.033)	0.162* (0.065)		
Creditor Banker					0.452* (0.056)	0.328* (0.064)	0.533** (0.027)	0.380** (0.034)
Non-Creditor Banker					0.254* (0.076)	0.184* (0.088)	0.309** (0.029)	0.220** (0.040)
CEO Tenure	-0.038*** (0.000)	-0.026*** (0.000)	-0.037*** (0.000)	-0.026*** (0.000)	-0.037*** (0.000)	-0.026*** (0.000)	-0.037*** (0.000)	-0.026*** (0.000)
CEO Duality	0.338*** (0.002)	0.243*** (0.003)	0.327*** (0.002)	0.234*** (0.004)	0.323*** (0.002)	0.232*** (0.004)	0.313*** (0.003)	0.226*** (0.005)
External CEO	-0.627*** (0.000)	-0.468*** (0.000)	-0.632*** (0.000)	-0.472*** (0.000)	-0.626*** (0.000)	-0.468*** (0.000)	-0.631*** (0.000)	-0.471*** (0.000)
CEO Age	0.040*** (0.000)	0.031*** (0.000)	0.040*** (0.000)	0.032*** (0.000)	0.040*** (0.000)	0.032*** (0.000)	0.040*** (0.000)	0.032*** (0.000)
Ln (Total Assets)	0.065 (0.199)	0.02 (0.594)	0.06 (0.235)	0.017 (0.656)	0.059 (0.248)	0.016 (0.677)	0.067 (0.186)	0.021 (0.576)
Leverage	-2.157*** (0.000)	-1.617*** (0.000)	-2.124*** (0.000)	-1.593*** (0.000)	-2.139*** (0.000)	-1.605*** (0.000)	-2.143*** (0.000)	-1.607*** (0.000)
R&D expenses/Sales	-3.247** (0.040)	-2.611** (0.028)	-3.327** (0.035)	-2.670** (0.024)	-3.344** (0.034)	-2.684** (0.024)	-3.551** (0.024)	-2.816** (0.017)
Liquidity constraint	-0.272 (0.151)	-0.167 (0.262)	-0.27 (0.156)	-0.165 (0.268)	-0.261 (0.168)	-0.158 (0.286)	-0.254 (0.180)	-0.154 (0.300)
Tax status	-0.076 (0.471)	-0.057 (0.465)	-0.073 (0.489)	-0.055 (0.482)	-0.074 (0.483)	-0.056 (0.476)	-0.072 (0.496)	-0.055 (0.487)
Firm age	0.013*** (0.000)	0.009*** (0.000)	0.013*** (0.000)	0.009*** (0.000)	0.013*** (0.000)	0.009*** (0.000)	0.013*** (0.000)	0.009*** (0.000)
Board Independence	1.761*** (0.000)	1.334*** (0.000)	1.798*** (0.000)	1.363*** (0.000)	1.805*** (0.000)	1.367*** (0.000)	1.862*** (0.000)	1.404*** (0.000)
Board Size	0.124*** (0.000)	0.097*** (0.000)	0.123*** (0.000)	0.096*** (0.000)	0.121*** (0.000)	0.095*** (0.000)	0.126*** (0.000)	0.098*** (0.000)
Institutional Ownership	0.211 (0.730)	0.079 (0.864)	0.238 (0.698)	0.098 (0.831)	0.248 (0.685)	0.105 (0.819)	0.2 (0.745)	0.074 (0.873)
Lambda	0.546** (0.036)	0.362** (0.037)	0.492* (0.063)	0.324* (0.065)	0.513* (0.060)	0.339* (0.058)	0.561** (0.036)	0.371** (0.037)
Observations	6090	6090	6090	6090	6090	6090	6090	6090
Pseudo R^2	0.084	0.090	0.084	0.090	0.084	0.091	0.083	0.090
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Method	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
Panel B: H0 :								
			Current = Past		Creditor Non-Creditor		Creditor = Non-Creditor	
F-test			0.02	0.00	0.58	0.54	0.71	0.65
Prob > F			(0.896)	(0.959)	(0.448)	(0.463)	(0.399)	(0.419)

Table 2.8 – Probability of having a banker-director – Propensity-score matching first stage

This table reports the regression examining the likelihood that the firm has at least one director with current or past executive experience in a commercial bank in the 1st step of propensity score matching with a maximum caliper difference of 0.0001 and using the logit method. *Bank density* is the number of commercial banks headquartered in the same five-digit zip code as the firm. Other characteristics are as in Appendix A. The specification includes industry and year dummies. Industry dummies are based on Fama-French 48 industry classification. The constant is estimated but not reported. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

	Banker Director
Bank density	0.484*** (0.000)
Short-term debt/Long-term debt	-0.004** (0.015)
Ln (Total Assets)	-0.055 (0.307)
Leverage	0.820*** 0.000
PPE	0.133 (0.228)
Market-to-book	-0.007 (0.449)
Commercial credit rating	-0.054*** (0.000)
Credit rating dummy	-0.222 (0.230)
Bankruptcy risk	-1.006 (0.725)
Stock return volatility	-3.062*** (0.001)
Stock return volatility square	2.693*** (0.007)
Institutional ownership	-0.405** (0.028)
Board independence	0.854*** (0.006)
Board size	0.177*** (0.000)
Observations	6090
Pseudo R2	0.116
Year FE	Yes
Industry FE	Yes
Method	Logit

Table 2.9 – The presence of banker-directors and inside debt- Propensity-score matching second stage

This table reports regressions examining whether having a director with banking experience impacts on CEO inside debt using the propensity-score matching technique. p-values are reported in parentheses. All variables are defined in Table 2 or Appendix A. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels.

	(1) Relative Executive Leverage	(2) Relative Executive Incentive	(3) Relative Executive Leverage	(4) Relative Executive Incentive	(5) Relative Executive Leverage	(6) Relative Executive Incentive	(7) Relative Executive Leverage	(8) Relative Executive Incentive
Banker Director	0.426*** (0.000)	0.308*** (0.001)						
Current Executive			0.375*** (0.010)	0.285*** (0.009)				
Past Executive			0.312** (0.014)	0.219** (0.021)	0.309** (0.014)	0.218** (0.021)		
Creditor Banker					0.459* (0.071)	0.317* (0.095)	0.540** (0.037)	0.374* (0.052)
Non-Creditor Banker					0.386** (0.014)	0.288** (0.015)	0.426*** (0.006)	0.316*** (0.007)
CEO Tenure	-0.027** (0.014)	-0.019** (0.021)	-0.027** (0.014)	-0.019** (0.021)	-0.027** (0.014)	-0.019** (0.021)	-0.029*** (0.009)	-0.020** (0.014)
CEO Duality	0.161 (0.222)	0.122 (0.220)	0.145 (0.272)	0.11 (0.270)	0.142 (0.281)	0.108 (0.277)	0.128 (0.331)	0.098 (0.323)
External CEO	-0.613*** (0.000)	-0.462*** (0.000)	-0.623*** (0.000)	-0.469*** (0.000)	-0.616*** (0.000)	-0.464*** (0.000)	-0.624*** (0.000)	-0.470*** (0.000)
CEO Age	0.028*** (0.007)	0.024*** (0.003)	0.029*** (0.005)	0.025*** (0.002)	0.029*** (0.005)	0.025*** (0.002)	0.030*** (0.004)	0.025*** (0.002)
Ln(Total Assets)	0.044 (0.453)	-0.002 (0.962)	0.035 (0.553)	-0.009 (0.837)	0.036 (0.541)	-0.008 (0.858)	0.041 (0.492)	-0.005 (0.918)
Leverage	-1.998*** (0.000)	-1.463*** (0.000)	-1.997*** (0.000)	-1.463*** (0.000)	-2.027*** (0.000)	-1.483*** (0.000)	-2.065*** (0.000)	-1.511*** (0.000)
R&D expenses/Sales	-3.259 (0.116)	-2.475 (0.112)	-3.412 (0.100)	-2.592* (0.096)	-3.336 (0.108)	-2.535 (0.104)	-3.807* (0.063)	-2.868* (0.062)
Liquidity constraint	-0.346 (0.225)	-0.191 (0.409)	-0.339 (0.236)	-0.186 (0.424)	-0.32 (0.265)	-0.172 (0.461)	-0.289 (0.314)	-0.15 (0.519)
Tax status	-0.107 (0.398)	-0.088 (0.357)	-0.096 (0.445)	-0.079 (0.401)	-0.099 (0.431)	-0.082 (0.383)	-0.091 (0.471)	-0.077 (0.418)
Firm age	0.019*** (0.000)	0.014*** (0.000)	0.019*** (0.000)	0.013*** (0.000)	0.019*** (0.000)	0.013*** (0.000)	0.018*** (0.000)	0.013*** (0.000)
Board Independence	1.883*** (0.001)	1.454*** (0.001)	1.890*** (0.001)	1.463*** (0.001)	1.923*** (0.001)	1.485*** (0.001)	2.006*** (0.001)	1.544*** (0.000)
Board Size	0.078** (0.031)	0.062** (0.024)	0.073** (0.042)	0.059** (0.033)	0.072** (0.044)	0.058** (0.034)	0.074** (0.038)	0.059** (0.030)
Institutional Ownership	-0.763 (0.276)	-0.658 (0.213)	-0.714 (0.311)	-0.62 (0.244)	-0.709 (0.312)	-0.621 (0.242)	-0.768 (0.281)	-0.662 (0.218)
Observations	2530	2530	2530	2530	2530	2530	2530	2530
Pseudo R^2	0.100	0.109	0.101	0.110	0.101	0.111	0.099	0.109
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Method	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
H0 :	Current = Past			Creditor Non-Creditor		Creditor = Non-Creditor		
F-test			0.09	0.18	0.07	0.02	0.16	0.08
Prob > F			(0.764)	(0.673)	(0.791)	(0.887)	(0.685)	(0.781)

Table 2.10 – Time-variation in board composition (1) - Appointment of a banker to the board

This table reports univariate and multivariate analyses of how CEO inside debt changes after the firm appoints a director with executive experience in a commercial bank. Dependent variables are different proxies for CEO inside debt: *Relative Executive Leverage* and *Relative Executive Incentive*. *Post* is a dummy variable indicating the period after the appointment of a banker-director. All variables are as in Table 2 or Appendix A. Regressions are run in different windows around the year of the appointment (year 0). All specifications include industry and year dummies. Industry dummies are based on Fama-French 48 industry classification. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

[illegible]

Table 2.11 – Time-variation in board composition (2) -Appointment of a banker to the board after covenant violation

This table reports regressions examining whether new banker-directors appointed after a covenant violation impact on CEO inside debt. The dependent variables are different proxies for CEO inside debt: *Relative Executive Leverage* and *Relative Executive Incentives*. *New appointment* is an (treatment group) indicator variable that equals one if there is an appointment of banker-director between year 0 and year 2 after the covenant violation. *After* is an indicator variable that equals one in the post-violation period. Other characteristics are as in Appendix A. Industry dummies are based on Fama-French 48 industry classification. *p-values* are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

Panel A: Pre-treatment differences				
	Control	Treatment	Differences	t-statistics
Ln (Total Assets)	8.157	8.707	-0.550	-0.586
Leverage	0.544	0.517	0.028	0.139
R&D expenses/Sales	0.002	0.000	0.002	0.619
Liquidity constraint	0.000	0.000	0.000	-
Tax status	0.615	1.000	-0.385	-1.041
Firm age	21.543	8.636	12.907	1.264
CEO Tenure	7.839	11.423	-3.584	1.264
External CEO	0.385	0.500	-0.115	-0.539
CEO Duality	0.538	1.000	-0.462	-0.290
CEO Age	56.308	62.75	-6.442	-1.297
Board Independence	0.778	0.787	-0.009	-0.093
Board Size	10.077	9.000	1.077	0.568
Institutional Ownership	0.624	0.715	-0.09	-0.389
Panel B: Difference-in-differences estimator				
	(1) Relative Executive Leverage	(2) Relative Executive Incentive	(3) Relative Executive Leverage	(4) Relative Executive Incentive
New appointment * After	0.740* (0.090)	0.447** (0.047)	0.823** (0.015)	0.498*** (0.004)
After	-0.588 (0.429)	-0.388 (0.357)	-0.462 (0.431)	-0.333 (0.324)
Observations	177	177	177	177
R^2	0.831	0.816		
Pseudo R^2			0.517	0.657
Control variables	Size	Size	Size	Size
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	No	No
Industry FE	No	No	Yes	Yes
Method	OLS	OLS	Tobit	Tobit

Table 2.12 – Optimal CEO incentive ratio

This table reports regressions relating relative executive incentives and deviation from optimal incentive ratio. The dependent variable is *Relative Executive Incentive*, the proxy for CEO inside debt. *Deviation from optimum* is the gap between the predicted optimal level of incentives and the actual relative executive incentive ratio. The optimum is estimated based on the (untabulated) first-stage regression following Campbell, Galpin and Johnson (2016). All variables are as in Table 2 or Appendix A. All specifications include industry and year dummies. Industry dummies are based on Fama-French 48 industry classification. The constant is estimated but not reported. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

	(1) Relative Executive Incentive	(2) Relative Executive Incentive	(3) Relative Executive Incentive	(4) Relative Executive Incentive
Deviation from optimum _{t-1}	-0.825*** (0.000)	-0.822*** (0.000)	-0.806*** (0.000)	-0.897*** (0.000)
CEO Tenure		-0.019*** (0.000)		-0.023*** (0.000)
CEO Duality		0.201*** (0.000)		0.256*** (0.000)
External CEO		-0.341*** (0.000)		-0.527*** (0.000)
CEO Age		0.027*** (0.000)		0.033*** (0.000)
Ln (Total Assets)		-0.016* (0.092)		0.079*** (0.000)
Leverage		-1.294*** (0.000)		-1.418*** (0.000)
R&D expenses/Sales		-0.585* (0.059)		-4.126*** (0.000)
Liquidity constraint		-0.087 (0.176)		-0.184** (0.044)
Tax status		-0.037* (0.094)		0.01 (0.758)
Firm age		0.007*** (0.000)		0.011*** (0.000)
Board Independence		0.835*** (0.000)		1.553*** (0.000)
Board Size		0.057*** (0.000)		0.119*** (0.000)
Institutional Ownership		-0.245** (0.038)		0.204 (0.259)
Observations	4843	4843	4843	4843
R^2	0.604	0.738		
Pseudo R^2			0.193	0.376
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Method	OLS	OLS	Tobit	Tobit

Table 2.13 – Optimal CEO incentive ratio – the impact of banker-directors

This table reports regressions relating relative executive incentives and deviation from optimal incentive ratio. The dependent variable is *Relative Executive Incentive*, the proxy for CEO inside debt. *Deviation from optimum* is the gap between the predicted optimal level of incentives and the actual relative executive incentive ratio. The optimum is estimated based on the (untabulated) first-stage regression following Campbell, Galpin and Johnson (2016). All variables are as in Table 2 or Appendix A. All specifications include industry and year dummies. Industry dummies are based on Fama-French 48 industry classification. The constant is estimated but not reported. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

	(1) Relative Executive Incentive	(2) Relative Executive Incentive	(3) Relative Executive Incentive	(4) Relative Executive Incentive
Deviation from optimum _{t-1}	-0.793*** (0.000)	-0.796*** (0.000)	-0.779*** (0.000)	-0.874*** (0.000)
Banker Director	0.288*** (0.000)	0.203*** (0.000)	0.436*** (0.000)	0.232*** (0.000)
Banker Director * Deviation from optimum _{t-1}	-0.082** (0.022)	-0.069*** (0.010)	-0.092* (0.053)	-0.059** (0.049)
CEO Tenure		-0.019*** (0.000)		-0.024*** (0.000)
CEO Duality		0.206*** (0.000)		0.263*** (0.000)
External CEO		-0.332*** (0.000)		-0.514*** (0.000)
CEO Age		0.027*** (0.000)		0.033*** (0.000)
Ln(Total Assets)		-0.027*** (0.002)		0.061*** (0.000)
Leverage		-1.352*** (0.000)		-1.588*** (0.000)
R&D expenses/Sales		-0.4 (0.188)		-3.807*** (0.000)
Liquidity constraint		-0.078 (0.211)		-0.165* (0.065)
Tax status		-0.039* (0.063)		0.009 (0.763)
Firm age		0.007*** (0.000)		0.011*** (0.000)
Board Independence		0.732*** (0.000)		1.278*** (0.000)
Board Size		0.053*** (0.000)		0.113*** (0.000)
Institutional Ownership		-0.176 (0.117)		0.290* (0.096)
Lambda	0.808*** (0.000)	-0.064 (0.626)	0.038 (0.859)	-0.314* (0.059)
Observations	4843	4843	4843	4843
R ²	0.604	0.738		
Pseudo R ²			0.193	0.376
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Method	OLS	OLS	Tobit	Tobit

Table 2.14 – The presence of banker-directors and inside debt: Monitoring mechanisms

This table reports regressions examining whether having a director with banking experience impacts on CEO inside debt in firms with different corporate governance standards, controlling for self-selection bias by including the inverse Mills ratio from the first-stage probit regression. Dependent variables are different proxies for CEO inside debt: *Relative Executive Leverage* and *Relative Executive Incentive*. *Relative Executive Leverage* is the ratio of the CEO's debt-to-equity scaled by the firm's debt-to-equity ratio. *Relative Executive Incentive* is the ratio of the marginal change in the value of CEO inside debt holding to the marginal change in CEO inside equity holdings given the change in firm value, scaled by the firm's respective ratio. Banker Director is a dummy that equals 1 if a given firm has at least one board member who is a current executive or a previous executive in a commercial bank. *Institutional ownership* indicates the percentage of shares outstanding held by institutional investors. *G-Index* is the Gompers, Ishii and Metrick's Antitakeover Index. The observations are divided into high and low institutional ownership and G-Index based on the medians of the variables. Lambda is the inverse Mills ratio from the first-stage probit regression. Other characteristics are as in Appendix A. All specifications include industry and year dummies. Industry dummies are based on Fama-French 48 industry classification. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

	Institutional ownership				G-Index			
	High	Low	High	Low	High	Low	High	Low
	Relative Executive Leverage	Relative Executive Leverage	Relative Executive Incentive	Relative Executive Incentive	Relative Executive Leverage	Relative Executive Leverage	Relative Executive Incentive	Relative Executive Incentive
Panel A								
Banker Director	0.131 (0.393)	0.512*** (0.000)	0.065 (0.564)	0.375*** (0.000)	0.479*** (0.000)	0.358 (0.187)	0.333*** (0.001)	0.244 (0.228)
Lambda	0.716*** (0.005)	-0.046 (0.939)	0.478*** (0.003)	-0.078 (0.868)	0.665*** (0.008)	-0.877 (0.179)	0.454*** (0.004)	-0.778 (0.164)
Observations	3042	3048	3042	3048	3310	1937	3310	1937
Pseudo R2	0.088	0.094	0.098	0.1	0.088	0.084	0.1	0.09
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Method	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
Panel B: H0: High = Low								
F-test	2.56		3.44		0.11		0.09	
Prob > F	(0.110)		(0.064)		(0.746)		(0.767)	

2.10 Appendices of Chapter 2

Appendix 2.A. Variable definitions

Variable	Definition
Inside Debt Variables	
Executive Debt to Equity	The ratio of CEO inside debt (the sum of the present value of accumulated pension benefits and deferred compensation) and CEO inside equity (the value of share and option holdings)
Relative Executive Leverage	Executive debt to equity divided by the firm's long-term debt to the market value of equity ratio
Relative Executive Incentives	The ratio of the marginal change in the value of CEO inside debt holdings to the marginal change in CEO inside equity holdings given the change in firm value, scaled by the firm's respective ratio
Relative Executive Leverage>1 dummy	Indicator variable for whether the relative executive leverage exceeds 1
Relative Executive Incentives>1 dummy	Indicator variable for whether the relative executive incentive exceeds 1
Deviation from optimum	The gap between the predicted optimal level of incentives and the actual relative executive incentive ratio. The optimum is estimated based on the regression following Campbell et al. (2016).
Board Members Variables	
Banker Director	A dummy that equals 1 if the firm has at least one board member who is a current or past executive in a commercial bank
Current Executive	A dummy that equals 1 if the firm has at least one board member who is a current executive in a commercial bank
Past Executive	A dummy that equals 1 if the firm has at least one board member who is a former executive in a commercial bank
Creditor Banker	A dummy that equals 1 if the firm has at least one board member who is a current executive in a commercial bank that has at least one loan to the company at the end of the fiscal year as a sole lender or as a lead arranger in a syndicate
Non-Creditor Banker	A dummy that equals 1 if the firm has a board member who is a current executive in a commercial bank

Continued on next page

Appendix 2.10– continued from previous page

Variable	Definition
	that has no lending relationship with the firm
New Appointment	A dummy that equals 1 if there is a new appointment of a banker-director between year 0 and year 2 after a covenant violation
CEO characteristics	
CEO Tenure	The number of years the CEO has served in this position
CEO Duality	A dummy that equals 1 if the CEO is also the board chair
External CEO	A dummy that equals 1 if the CEO was hired from outside the firm
CEO Age	Age of the CEO in years
Firm-specific characteristics	
Ln(Total Assets) (or Size)	The natural logarithm of total assets
Leverage	Long-term debt divided by the sum of long-term debt and the book value of equity
R&D expenses/Sales	Research and development expenses scaled by sales
Liquidity Constraint	A dummy that equals 1 if the firm has negative operating cash flow
Tax Status	A dummy that equals 1 if the firm has net operating loss carry-forwards on its balance sheet
Firm Age	The number years since the firm was founded
Bank Density	The number of commercial banks headquartered in the same five-digit zip code as the firm
Short-term debt/Long-term debt	Short-term debt scaled by long-term debt
PPE	Property, plant and equipment scaled by total assets
Market-to-book	Market value of equity divided by the book value of equity
Commercial credit rating	S&P long-term issuer credit rating (AAA = 1, AA + = 2 ...)
Credit rating dummy	A dummy that equals 1 if the firm has a commercial credit rating
Bankruptcy risk	Probability that the firm will go bankrupt, based on Shumway (2001)
Stock return volatility	Standard deviation of monthly stock returns over the prior three years
Stock return volatility square	Square of stock return volatility
Violation	A dummy that equals 1 if the firm violates the net worth, tangible net worth or current covenant in any quarter of the year

Continued on next page

Appendix 2.10– continued from previous page

Variable	Definition
After	A dummy that equals 1 in the post-covenant violation period
Corporate Governance Measures	
Board Size	The number of directors on the board
Board Independence	The fraction of outside directors on the board
Institutional Ownership	The fraction of shares held by investment companies
G-Index	The Gompers et al. (2003)'s Antitakeover Index

Appendix 2.B. Correlation matrix

This table shows the correlation matrix between variables used in main regressions. All definitions of variables are reported in Appendix A

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Relative Executive Leverage	(1)	1														
Relative Executive Incentive	(2)	0.984	1													
Ln (Total Assets)	(3)	0.143	0.113	1												
Leverage	(4)	-0.194	-0.202	0.270	1											
R&D expenses/Sales	(5)	-0.021	-0.03	-0.108	-0.219	1										
Liquidity constraint	(6)	-0.062	-0.055	-0.113	0.061	0.086	1									
Tax status	(7)	-0.076	-0.076	-0.168	-0.08	0.071	0.006	1								
Firm age	(8)	0.249	0.227	0.453	0.142	-0.123	-0.041	-0.171	1							
CEO Tenure	(9)	-0.083	-0.067	-0.124	-0.065	0.023	0.046	0.022	-0.131	1						
External CEO	(10)	-0.140	-0.138	-0.143	0.019	0.109	0.02	0.036	-0.137	-0.096	1					
CEO Duality	(11)	0.134	0.129	0.181	0.038	-0.098	-0.039	-0.025	0.174	0.301	-0.064	1				
CEO Age	(12)	0.120	0.132	0.079	-0.021	-0.086	0.001	-0.029	0.087	0.405	0.009	0.261	1			
Board Independence	(13)	0.125	0.116	0.229	0.114	0.001	-0.042	-0.058	0.254	-0.136	0.075	0.178	-0.038	1		
Board Size	(14)	0.187	0.168	0.596	0.214	-0.150	-0.080	-0.142	0.413	-0.186	-0.112	0.077	0.051	0.172	1	
Institutional Ownership	(15)	-0.075	-0.075	-0.183	-0.056	0.067	-0.025	0.072	-0.243	0.015	0.104	-0.005	-0.057	0.026	-0.230	1
Observations		6110														

Appendix 2.C. Summary statistics of variables used in the first stage of Heckman and PSM procedures

This table shows the summary statistic of independent variables used in the first stage of Heckman and propensity score matching procedures reported in Tables 5 and 7, respectively. All definitions of these variables are reported in Appendix A.

	N	Mean	Median	Q1	Q3	Std dev
Bank density	6110	0.058	0.000	0.000	0.000	0.263
Short-term debt/Long-term debt	6110	0.233	0.122	0.039	0.268	0.312
Ln (Total Assets)	6110	7.774	7.934	6.960	8.762	0.920
Leverage	6110	0.331	0.308	0.158	0.457	0.334
PPE	6110	0.549	0.453	0.236	0.82	0.385
Market-to-book	6110	2.989	2.248	1.524	3.396	3.302
Commercial credit rating	6110	14.447	12.667	9.000	22.000	6.224
Credit rating dummy	6110	0.623	1.000	0.000	1.000	0.485
Bankruptcy risk	6110	0.003	0.001	0.000	0.002	0.019
Stock return volatility	6110	0.363	0.339	0.249	0.443	0.151
Stock return volatility square	6110	0.155	0.115	0.062	0.197	0.137
Institutional ownership	6110	0.796	0.812	0.705	0.901	0.172
Board independence	6110	0.787	0.810	0.718	0.875	0.106
Board size	6110	9.382	9.333	8.000	11.000	1.667
Observations	6110					

Appendix 2.D Summary statistics of covenant violation data – quarterly frequency

This table shows the number of observations and the fraction of covenant violations based on the current ratio, net worth, and tangible net worth. The sample consists of quarterly observation of S&P1500 non-financial firms from 2006-2014 for which syndicated loans data are available from Dealscan. The table compares our sample statistics with those in Chava and Roberts (2008) and Ferreira et al. (2018).

	Our full sample		Chava and Roberts (2008)		Ferreira et al. (2018)	
	N	Fraction of violation	N	Fraction of violation	N	Fraction of violation
Current ratio	2488	0.239	5428	0.15	808	0.09
Net worth	9706	0.102	13021	0.14	3727	0.05
Tangible net worth	5074	0.068	13021	0.14	2138	0.04
Net worth/Tangible net worth or Current ratio	15119	0.122				

Appendix 2.E Robustness tests

Table 2.E.1: The presence of banker-directors and inside debt: Adding firm performance and firm risk variables

This table reports regressions examining whether having a director with banking experience impacts on CEO inside debt controlling for self-selection bias by including the inverse Mills ratio from the first-stage probit regression and adding firm performance (ROA) and firm risk (σ ROA). ROA is calculated as net income divided by total assets. (σ ROA) is calculated as the standard deviation of past 5 years of quarterly return on assets. Other characteristics are as in Table 2 or Appendix A. All specifications include industry and year dummies. Industry dummies are based on Fama-French 48 industry classification. The constant is estimated but not reported. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Relative Executive Leverage	Relative Executive Incentive	Relative Executive Leverage	Relative Executive Incentive	Relative Executive Leverage	Relative Executive Incentive	Relative Executive Leverage	Relative Executive Incentive
Banker Director	0.354*** (0.002)	0.243*** (0.004)						
Current Executive			0.238* (0.074)	0.177* (0.078)				
Past Executive			0.263** (0.025)	0.170* (0.050)	0.249** (0.033)	0.161* (0.064)		
Creditor Banker					0.461* (0.051)	0.334* (0.059)	0.541** (0.024)	0.386** (0.031)
Non-Creditor Banker					0.250* (0.080)	0.182* (0.092)	0.304** (0.031)	0.217** (0.042)
ROA	2.116** (0.024)	1.477** (0.031)	2.087** (0.025)	1.455** (0.033)	2.129** (0.023)	1.486** (0.030)	2.094** (0.025)	1.464** (0.032)
σ ROA	-1.484 (0.549)	-0.738 (0.692)	-1.468 (0.551)	-0.743 (0.688)	-1.388 (0.574)	-0.683 (0.712)	-1.672 (0.500)	-0.866 (0.642)
Lambda	0.500* (0.056)	0.331* (0.057)	0.447* (0.092)	0.293* (0.095)	0.467* (0.087)	0.309* (0.085)	0.515* (0.055)	0.339* (0.055)
Observations	6090	6090	6090	6090	6090	6090	6090	6090
Pseudo R^2	0.085	0.091	0.084	0.091	0.085	0.091	0.084	0.091
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Method	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit

Table 2.E.2: The presence of banker-directors and inside debt: using OLS

method

This table reports OLS regressions examining whether having a director with banking experience impacts on CEO inside debt controlling for self-selection bias by including the inverse Mills ratio from the first-stage probit regression. Other characteristics are as in Table 2 or Appendix A. All specifications include industry and year dummies. Industry dummies are based on Fama-French 48 industry classification. The constant is estimated but not reported. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

	(1) Relative Executive Leverage	(2) Relative Executive Incentive	(3) Relative Executive Leverage	(4) Relative Executive Incentive	(5) Relative Executive Leverage	(6) Relative Executive Incentive	(7) Relative Executive Leverage	(8) Relative Executive Incentive
Banker Director	0.301*** (0.001)	0.205*** (0.003)						
Current Executive			0.216** (0.049)	0.160* (0.052)				
Past Executive			0.232** (0.015)	0.148** (0.036)	0.219** (0.021)	0.139** (0.048)		
Creditor Banker					0.427** (0.043)	0.309** (0.050)	0.497** (0.022)	0.353** (0.028)
Non-Creditor Banker					0.229* (0.054)	0.165* (0.064)	0.275** (0.020)	0.195** (0.029)
CEO Tenure	-0.033*** (0.000)	-0.023*** (0.000)	-0.033*** (0.000)	-0.023*** (0.000)	-0.033*** (0.000)	-0.023*** (0.000)	-0.033*** (0.000)	-0.023*** (0.000)
CEO Duality	0.281*** (0.001)	0.201*** (0.001)	0.272*** (0.001)	0.194*** (0.002)	0.269*** (0.001)	0.192*** (0.002)	0.261*** (0.001)	0.187*** (0.002)
External CEO	-0.453*** (0.000)	-0.339*** (0.000)	-0.457*** (0.000)	-0.342*** (0.000)	-0.453*** (0.000)	-0.339*** (0.000)	-0.456*** (0.000)	-0.341*** (0.000)
CEO Age	0.034*** (0.000)	0.027*** (0.000)	0.034*** (0.000)	0.027*** (0.000)	0.034*** (0.000)	0.027*** (0.000)	0.034*** (0.000)	0.027*** (0.000)
Ln(Total Assets)	-0.010 (0.791)	-0.034 (0.249)	-0.015 (0.708)	-0.037 (0.209)	-0.016 (0.680)	-0.038 (0.198)	-0.010 (0.807)	-0.033 (0.252)
Leverage	-1.946*** (0.000)	-1.458*** (0.000)	-1.918*** (0.000)	-1.439*** (0.000)	-1.931*** (0.000)	-1.449*** (0.000)	-1.936*** (0.000)	-1.451*** (0.000)
R&D expenses/Sales	-0.380 (0.700)	-0.445 (0.549)	-0.433 (0.661)	-0.486 (0.513)	-0.453 (0.645)	-0.501 (0.499)	-0.625 (0.523)	-0.610 (0.407)
Liquidity constraint	-0.125 (0.319)	-0.066 (0.517)	-0.124 (0.324)	-0.064 (0.525)	-0.116 (0.352)	-0.059 (0.558)	-0.111 (0.375)	-0.056 (0.582)
Tax status	-0.111 (0.177)	-0.082 (0.178)	-0.108 (0.188)	-0.080 (0.188)	-0.108 (0.185)	-0.081 (0.185)	-0.106 (0.197)	-0.079 (0.196)
Firm age	0.010*** (0.000)	0.007*** (0.000)	0.010*** (0.000)	0.007*** (0.000)	0.010*** (0.000)	0.007*** (0.000)	0.010*** (0.000)	0.007*** (0.000)
Board Independence	1.072*** (0.003)	0.823*** (0.002)	1.102*** (0.002)	0.848*** (0.002)	1.106*** (0.002)	0.850*** (0.002)	1.155*** (0.001)	0.880*** (0.001)
Board Size	0.065*** (0.007)	0.053*** (0.003)	0.064*** (0.008)	0.052*** (0.004)	0.062*** (0.010)	0.051*** (0.005)	0.067*** (0.005)	0.054*** (0.002)
Institutional Owner-ship	-0.196 (0.668)	-0.215 (0.533)	-0.165 (0.718)	-0.194 (0.575)	-0.154 (0.737)	-0.186 (0.590)	-0.187 (0.685)	-0.207 (0.552)
Lambda	0.455** (0.031)	0.299** (0.027)	0.408* (0.057)	0.266* (0.052)	0.424* (0.055)	0.278** (0.047)	0.469** (0.030)	0.307** (0.026)
Observations	6090	6090	6090	6090	6090	6090	6090	6090
R ²	0.085	0.091	0.084	0.091	0.085	0.091	0.084	0.091
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Method	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS

Table 2.E.3: The presence of banker-directors and inside debt: alternative measures of inside debt

This table reports OLS regressions examining whether having a director with banking experience impacts on CEO inside debt controlling for self-selection bias by including the inverse Mills ratio from the first-stage probit regression. Other characteristics are as in Table 2 or Appendix A. All specifications include industry and year dummies. Industry dummies are based on Fama-French 48 industry classification. The constant is estimated but not reported. p-values are reported in parentheses. Asterisks indicate significance at 0.01 (***), 0.05 (**), and 0.10 (*) levels. Robust standard errors are clustered at the firm level.

	(1) Relative Executive Leverage > 1 dummy	(2) Relative Executive Incentive > 1 dummy	(3) Relative Executive Leverage > 1 dummy	(4) Relative Executive Incentive > 1 dummy	(5) Relative Executive Leverage > 1 dummy	(6) Relative Executive Incentive > 1 dummy	(7) Relative Executive Leverage > 1 dummy	(8) Relative Executive Incentive > 1 dummy
Banker Director	0.262*** (0.001)	0.231*** (0.004)						
Current Executive			0.218** (0.020)	0.157* (0.097)				
Past Executive			0.166** (0.046)	0.160* (0.061)	0.169** (0.040)	0.153* (0.068)		
Creditor Banker					0.311* (0.072)	0.307* (0.077)	0.359** (0.040)	0.354** (0.044)
Non-Creditor Banker					0.164 (0.112)	0.141 (0.181)	0.201** (0.047)	0.177* (0.091)
CEO Tenure	-0.028*** (0.000)	-0.026*** (0.000)	-0.028*** (0.000)	-0.026*** (0.000)	-0.028*** (0.000)	-0.026*** (0.000)	-0.028*** (0.000)	-0.026*** (0.000)
CEO Duality	0.238*** (0.001)	0.212*** (0.005)	0.227*** (0.002)	0.202*** (0.006)	0.225*** (0.002)	0.200*** (0.007)	0.219*** (0.003)	0.195*** (0.009)
External CEO	-0.489*** (0.000)	-0.458*** (0.000)	-0.492*** (0.000)	-0.461*** (0.000)	-0.490*** (0.000)	-0.460*** (0.000)	-0.493*** (0.000)	-0.463*** (0.000)
CEO Age	0.031*** (0.000)	0.035*** (0.000)	0.032*** (0.000)	0.036*** (0.000)	0.032*** (0.000)	0.036*** (0.000)	0.032*** (0.000)	0.036*** (0.000)
Ln(Total Assets)	0.001 (0.975)	-0.026 (0.471)	-0.002 (0.950)	-0.029 (0.438)	-0.002 (0.963)	-0.029 (0.423)	0.003 (0.937)	-0.025 (0.495)
Leverage	-1.736*** (0.000)	-2.047*** (0.000)	-1.704*** (0.000)	-2.018*** (0.000)	-1.716*** (0.000)	-2.033*** (0.000)	-1.709*** (0.000)	-2.027*** (0.000)
R&D expenses/Sales	-1.201 (0.174)	-1.068 (0.233)	-1.252 (0.156)	-1.116 (0.212)	-1.274 (0.149)	-1.133 (0.206)	-1.404 (0.110)	-1.239 (0.165)
Liquidity constraint	-0.243 (0.126)	-0.143 (0.379)	-0.239 (0.134)	-0.140 (0.391)	-0.232 (0.146)	-0.135 (0.405)	-0.226 (0.157)	-0.129 (0.425)
Tax status	-0.071 (0.332)	-0.119* (0.098)	-0.068 (0.350)	-0.117 (0.104)	-0.069 (0.345)	-0.118 (0.103)	-0.068 (0.350)	-0.118 (0.104)
Firm age	0.008*** (0.000)	0.007*** (0.001)	0.008*** (0.000)	0.007*** (0.002)	0.008*** (0.000)	0.007*** (0.002)	0.008*** (0.000)	0.007*** (0.002)
Board Independence	1.559*** (0.000)	1.184*** (0.001)	1.596*** (0.000)	1.210*** (0.001)	1.585*** (0.000)	1.209*** (0.001)	1.626*** (0.000)	1.248*** (0.000)
Board Size	0.064*** (0.003)	0.059*** (0.006)	0.062*** (0.004)	0.058*** (0.007)	0.062*** (0.004)	0.057*** (0.008)	0.065*** (0.002)	0.060*** (0.005)
Institutional Ownership	-0.158 (0.700)	-0.153 (0.707)	-0.127 (0.758)	-0.131 (0.748)	-0.122 (0.767)	-0.122 (0.765)	-0.142 (0.731)	-0.143 (0.727)
Lambda	0.538** (0.016)	0.608** (0.030)	0.493** (0.028)	0.574** (0.040)	0.518** (0.021)	0.590** (0.037)	0.545** (0.015)	0.613** (0.030)
Observations	6046	6046	6046	6046	6046	6046	6046	6046
Pseudo R2	0.193	0.178	0.192	0.177	0.192	0.178	0.191	0.177
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Method	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit

Chapter 3

Freedom of the press and corporate misconduct

Abstract

This study examines how freedom of the press affects corporate misconduct, focusing mainly on earnings management. I find that firms engage more in accrual-based earnings management when they have a high percentage of sales in countries with low media freedom. This effect is stronger when foreign product markets are further away from firm headquarters, when English is not the national language of the foreign partners, or when the fraction of institutional investors is low. This suggests that the influence of media freedom of foreign partners on earnings management depends on how domestic investors process information about firm export markets. I further show that the insiders of these firms tend to be involved in opportunistic insider trading through buy and sell transactions, suggesting a probability of having corporate misconduct for this type of firms. Overall, these results show that corporate misconduct can be in part explained by a spill over effect of media freedom of export markets.

JEL classification: D81, G14, G34, M1, M41.

Keywords: Corporate Governance, Freedom of the Press, Earnings Management, Opportunistic Insider Trading.

3.1 Introduction

The media acts as a monitor or “watchdog” to reduce accounting frauds (Miller, 2006). A firm may be covered often and by many news sources, but the information can still be biased if the media is controlled or influenced by other parties (Burgess, 2010; El Ghouli et al., 2019). A growing literature on media independence has indicated that in an environment with high media freedom, information can flow more openly to the public (Kim et al., 2017; Kanagaretnam et al., 2018; You et al., 2018). More specifically, such an environment incentivises journalists and the media industry to disseminate news and share unrestricted perspectives without fear of repercussions, and that information sharing, in turn, improves investors’ attention. Thus, the quality of media matters.

Additionally, existing literature on media freedom and firm activities (see, e.g., Kim et al., 2017; Kanagaretnam et al., 2018) has focused on the cross-sectional country level instead of on the firm-level. This focus may be due to the fact that the variation of media freedom within each country is relatively challenging to study over time. Thus, in this paper, I explore the impact of media freedom on corporate misconduct, with a special focus on earnings management, by using exposure to foreign product markets with media restriction to fill this research gap. According to Krause et al. (2016), U.S. firms are more likely to adjust their strategies and corporate governance factors to match those of the geographic regions in which the firms need to compete for sales. Following this argument, when firms have high engagements in countries with low media freedom, firms would align their activities with their partners. Furthermore, Engelberg and Parsons (2011) find that local me-

media coverage plays a more effective role in sharing information and is more accurate in forecasting local trading. As a result, I hypothesise that outside investors may encounter challenges in verifying information about firms which export a considerable share of their sales to countries with low media freedom. Consequently, these firms might take advantage of such situation, and corporate misconduct is likely to appear.

To test this hypothesis, I construct a firm-level index that captures the sales-weighted media restriction¹ in a firm's export markets relative to the U.S., using country-level data on media restriction from Freedom House website and data on foreign sales of U.S. firms from the COMPUSTAT Historical Segment database. Since the media freedom is the same for all U.S. firms, focusing on the sales-weighted media restriction ensures that exposure to countries with low media freedom is the primary driver of media restriction.² I find that firms are more likely to engage in accrual-based earnings management when they have a high fraction of sales in countries with low media freedom. The effect is economically substantial. I also demonstrate media freedom in terms of economic, political and legal factors is important, and that these three aspects together have an impact on earnings management. Further analysis on the specific direction of accrual-based earnings management as in Yu (2008) and Kim et al. (2012) suggests that manager are more likely to manage earnings through income-increasing activities when firms have a high fraction of sales in countries with low media freedom. This finding is consistent with the hypothesis

¹In this paper, I use both of the concepts 'media freedom' and 'media restriction', noting here that they are each other's complement, interchangeably

²For example, in 2016, if Firm A has \$100 mil sales to the UK (media restriction score is 25) and their total sales is \$1,000 mil, the index is thus $(100/1000) \times (25-23)/100 = 0.002$. If firm B has \$10 mil sales to Venezuela (media restriction score is 81), and their total sales are \$100 mil, the media restriction thus is $(10/100) \times (81-23)/100 = 0.058$.

that firms take advantage of media restriction to manipulate earnings upward.

This investigation, however, is still vulnerable to endogeneity concerns. For example, the decision to sell in a certain country is not random. Firms may jointly choose to trade in countries with unfree media while engaging in earnings management (self-selection bias). Alternatively, media freedom may be correlated with other unobservable characteristics that affect earnings management (omitted variable bias). Therefore, to partially alleviate these concerns, I employ different approaches.

I first focus on a sample of firms with a change in media freedom category of trading partners. Specifically, I examine earnings management across a set of firms with no change in a sales relationship and at least one trading country that experienced a change in the status of media freedom. For example, I focus on firms that constantly trade with the Philippines and test how their earnings management varied in 2003 when the media freedom in Philippines changed from free media to partly free media.³ In general, Freedom House changes status in media freedom of a country when there is a change in attacks against journalists such as harassment, physical violence and death threats, or when there is an exogenous impact on independent media ownership. Thus, the status change itself reflects the change in media freedom of a country rather than other factors. I find that firms with a negative change in media freedom of their foreign partners engage more in accrual-based earnings management, whereas firms experiencing a positive change in media

³In the report of Freedom House in 2004 for the media freedom of the Philippines for 2003: “Status change explanation: The Philippines’ status changed from Free to Partly Free to reflect the continuing impunity enjoyed by those who threaten and kill journalists”. <https://freedomhouse.org/report/freedom-press/2004/philippines>. Similarly, the report about Russia in 2003: “Status change explanation: Russia’s rating declined from Partly Free to Not Free because of the closure of the last independent national television broadcaster, negative state influence over public and private media, and repeated attacks against journalists”. <https://freedomhouse.org/report/freedom-press/2003/russia>

freedom do not engage in accrual-based earnings management. Hence, the results based on this test support my baseline findings.

The second test is based on the change in the efficiency of access to foreign information for U.S. investors, with the introduction of a new product of Dow Jones News Services, namely *NewsPlus*, as a source of variation to identify how the quality of media affects accrual-based earnings management. In particular, the launch of *NewsPlus* platform introduces more powerful search tools and more quickly updated news about foreign markets which, in turn, grants U.S. investors a better channel to access foreign information provided by branches of Dow Jones around the world. This analysis relies on the argument of Dyck et al. (2008) that foreign media can partially disseminate information about countries with low media freedom. Moreover, as hypothesised, when firms have a high share of sales in countries with low media freedom, the U.S domestic investors have challenges to verify information about foreign segments and external barriers to the U.S. firms. Hence, the overall quality of the information about foreign markets would improve after the launch of *NewsPlus*. I find that, after the application of the service, the effect of media restriction on earnings management is less pronounced. This result implies that the improvement in information quality of media results in a reduction in earnings management.

Next, I identify a potential economic mechanism underlying the link between media restriction of international markets and earnings management. My results show that the effect of media freedom in foreign product markets on accrual-based earnings management depends on how U.S. domestic investors process information about firm export markets. Specifically, I document that firms with a large share of

sales in countries with low media freedom manage earnings (1) when their foreign partners are further away from the U.S, (2) when the main national language of their foreign product markets is not English, or (3) when the fraction of institutional investors with more information about foreign product markets is low.

Furthermore, additional tests show that under the high cost of being scrutinised by high audit quality and being detected due to low accounting flexibility, accrual-based earnings management appears in this type of firms which suggests that it is easier to manage earnings by taking advantage of the non-transparent environment created by media restriction. Notably, I find that media restriction increases opportunities for insiders to trade on non-public information. Firm insiders with a higher percentage of sales in countries with low media freedom benefits, not only from their insider purchases, but also from sales transactions.

Together, these results suggest that media restriction can result in the probability of having corporate misconduct. When firms have a significant fraction of sales in countries with low media freedom, outsiders face challenges to process information about foreign product markets of these firms. Consequently, these firms are more likely to engage in accrual-based earnings management and opportunistic insider trading.

In the final section, I add a set of robustness tests. First, I conduct regressions on earnings management measures, for which I apply the one-step procedure of Chen et al. (2018) to identify total accrual earnings management and the alternative measures of accrual-based earnings management based on McNichols (2002); Kothari et al. (2005). I find that the effect of media freedom on earnings management remains unchanged. Second, I present the result from alternative construction for media

freedom to support the findings. Following these tests, I further show that the main findings are robust after considering alternative explanations, such as subsidiaries' characteristics and corporate governance factors.

Overall, the findings enhance the understanding of the influences of media freedom on corporate outcomes. The results of this paper bring together two strands of research. First, a growing literature on the media freedom has shown that independent media could lower corruption in bank lending (Houston et al., 2011), improve corporate social responsibility (El Ghouli et al., 2019), enhance firms' information environment (Kim et al., 2017), affect firms' operating efficiency You et al. (2018) and reduce corporate tax aggressiveness (Kanagaretnam et al., 2018). My paper contributes to the literature by showing that media freedom at the firm-level based on the exposure to countries with media restriction affects corporate misconduct, such as earnings management and opportunistic insider trading. Moreover, I also find evidence that the U.S domestic investors' information processing plays an important role in explaining how the exposure to foreign product markets affects corporate outcomes.

Second, this study also adds to the literature on the spill-over effect of institutional characteristics of foreign product markets on firms headquartered in the U.S.. By focusing on the geographic concentration of sales, demand-side cultural variance and industry context, Krause et al. (2016) show that firms may adjust their corporate governance characteristics to match those of the foreign product market's culture. My study contributes to this literature by showing that firms may affect corporate misconduct once they have a large share of sales in countries with low media freedom. In a study closely related to this paper, Dyreng et al. (2012a) show

that firms with foreign operations in countries with weak rule of law engage more in earnings management. However, my paper differs from theirs in two ways. First, I focus not only on media restriction of foreign product market but also on the country in which firms are incorporated or headquartered (U.S.). By doing this, my results highlight how the difference in social norm between firms and their partners affects corporate misconduct. Second, I show that media restriction can also permeate through foreign product markets and influences corporate misconduct, regardless of having subsidiaries or operations in those foreign countries.

The remainder of this paper proceeds as follows. Section 3.2 develops hypotheses. Section 3.3 describes my sample and the data. Section 3.4 reports and discusses my main empirical results, while Section 3.5 presents additional analyses. Section 3.6 shows robustness checks and section 3.7 concludes.

3.2 Literature Review and Hypothesis Development

3.2.1 Related literature

A growing literature on the role of media shows that media coverage may promote market efficiency by disseminating or disclosing information to capital markets (Fang and Peress, 2009; Bushee et al., 2010; Peress, 2014). Additionally, Miller (2006) and Dyck et al. (2010) find that external actors to the market, such as press coverage, have been effective in detecting accounting fraud. Similarly, Dai et al. (2015) show that media coverage has a monitoring role in deterring insider trading activities. However, according to El Ghouli et al. (2019), the literature on media coverage focuses on the number of times that a firm is covered by news sources, instead of

the quality of media. More importantly, freedom in press incentivises journalists to disseminate news and share unrestricted perspectives without fear of repercussions (Burgess, 2010). Thus, information sharing, when media is free, improves investors' attention and operating efficiency. In other words, information from the media is an important factor that tailors the quality of media.

Further, prior studies on media freedom have shown the impact of media independence on the financial system and firms' information environment. Particularly, a lack of independent media increases levels of bank corruption (Houston et al., 2011) and the likelihood of tax aggressiveness (Kanagaretnam et al., 2018). Moreover, Kim et al. (2017) argue that freedom for the media to fully disseminate collected information to capital markets enhances the information environment. Specifically, the authors state that low media independence weakens the ability to generate firm-level transparency, creates opportunities for firms to adjust their disclosures, and makes analyst forecast less accurate. Therefore, a lack of media independence could lead to information asymmetry and lower market efficiency. From external corporate mechanism aspect, You et al. (2018) compare news articles written by state-controlled and market-oriented Chinese media and show the accuracy and stronger corporate monitoring role of market-oriented media. Taken together, media freedom is an important institutional characteristic that enhances media quality and introduces the possibility of external monitoring.

3.2.2 Hypothesis development

Previous studies indicate that managers are more likely to engage in opportunistic earnings management if their wealth is more closely linked to stock prices

(Bergstresser and Philippon, 2006) or if they encounter pressure from capital markets and career-related incentives (Graham et al., 2005; Malmendier and Tate, 2009). Moreover, prior literature on earnings management also demonstrates that although accrual-based earnings management is based purely on accounting choices or methods, this method is more likely to draw auditors or regulatory scrutiny. A survey of Graham et al. (2005) shows that top executives prefer not to use accrual-based earnings management because this method is more likely to be scrutinised by auditors and regulators. Similarly, Cohen et al. (2008) show that after the Sarbanes-Oxley Act (SOX), managers have switched away from accrual-based earnings management to decrease the probability of detection.

Furthermore, as a mechanism to disseminate local information to non-local market participants, Engelberg and Parsons (2011) find that local media coverage plays a more effective role in sharing information and is more accurate in forecasting local trading. Besides, firms are more likely to adjust their activities to align with their foreign customers' social norms and characteristics when firms do business with customers in foreign markets because they need to win against their local competitors (Krause et al., 2016). Therefore, it is a valid concern that if firms have a high share of sales in countries with low media freedom, managers could decide to match firm activities to their export markets, allowing them to escape scrutiny. Furthermore, firms could choose where they could manage earnings. In particular, Dyreng et al. (2012a) suggest that profitable firms with subsidiaries in tax haven countries manage earnings more than other firms and that earnings management of these firms mainly comes from foreign income. Further, Beuselinck et al. (2019) show that firms engage in earnings management across subsidiaries over which they

exert significant impact. As a consequence, there is a possibility that firms may withhold information or manage earnings where investors are hard to verify the quality of earnings information. Thus, I hypothesise that when firms have high exposure to countries with low media freedom, the U.S. domestic investors could have difficulties with verifying information about firm activities and with understanding foreign barriers to U.S. firms. In turn, these firms could be more prone to corporate misconduct and engage in accrual-based earnings management.

3.3 Data, Sample and Measures

3.3.1 Data and Sample selection

The initial sample consists of all firms available in the Execucomp database for the period 1998-2016. I exclude financial firms (SIC 6000-6999) and utility firms (SIC 4900-4999). The sample starts from 1998 because since December 1997, under SFAS 131, firms have been required to disclose more information about segments if revenues or assets from external customers attributed to each individual foreign country are material (Berger and Hann, 2003). To obtain data about geographic segments, I use the COMPUSTAT Historical Segment database to retrieve the information. I further use COMPUSTAT and CRSP for financial information and stock prices.

3.3.2 Measurements of media freedom variable

First, following the similar approach as in Krause et al. (2016), I identify net sales to each individually disclosed country at the end of the financial year, because information on net sales is one of the most complete data provided in the COMPUSTAT Historical Segment. To collect information about geographical sales

either in the US or foreign sales, I focus on variables with geographical information in the COMPUSTAT Historical Segment database.⁴

Moreover, under SFAS 131, since there is no particular requirement about standard formats for classifying countries, there are different names for the same countries in firms' reports. To increase the precision and consistency of segment information, I manually check each listed country in each firm and recode names of these countries. For example, "UK", "United Kigdom", "United Kindom", "Great Britain", "U.K.", "England", "United Kingdom (UK)", "British" are recoded as "United Kingdom". Additionally, for a firm-year with no disclosure for any individual foreign country, sales to foreign markets are set to zero. Further, a group of countries or regions or continents is also set as zero. For example, if firms disclose "Europe" or "Asia", I set this disclosure as zero. If firms disclose a group of countries, such as "Asia Pacific" or "Canada and United Kingdom", I also set this disclosed foreign sales as zero.

In the second step, I calculate the difference in media restriction between each trading country and the U.S. by using the reports on the Freedom of the Press from 199 countries, which are available on the Freedom House website.⁵ Each country is scored on a numerical scale from 0 to 100, with higher values indicating a lower media freedom. In other words, this index represents the media restriction of a country. Also, each country is allocated in a group of free (score from 0-30), partly free (score from 31-60), or not free media (score above 60).⁶

Then, I construct two measures of media freedom in firms' export markets

⁴The COMPUSTAT Historical Segment provides four types of segments: business, geographic, operating and state. In the scope of this chapter, I focus on geographic segment information, which is calculated based on domestic sales, non-domestic sales and total foreign sales.

⁵<https://freedomhouse.org/report-types/freedom-press>

⁶In the paper, I scale this score by 100 to easily interpret the results.

based on these two inputs. The first measure is employed similar to the approach of Krause et al. (2016) by matching the percentage of each firm's sales trading with specific countries to total sales with the difference in media freedom index between foreign and U.S. markets as follows

$$Media\ restriction_{i,t} = \sum_{j=1}^n \frac{Sales_{i,j,t}}{Total\ Sales_{i,t}} \times (M_{j,t} - M_{US,t}) \quad (3.1)$$

where: $Media\ restriction_{i,t}$ is sale-weighted media restriction of firm i 's export markets in year t ; $S_{i,j,t}$ is sales of firm i to country j in year t , $S_{i,t}$ is sales of firm i in year t ; $M_{j,t}$ is media restriction in country j in year t ; $M_{US,t}$ is US media restriction in year t . Thus, a higher value of $Media\ restriction$ indicates a low media freedom environment.

The second measure is the percentage of sales that firms have to countries in several groups of media freedom (only considering countries with non-missing individual country names in COMPUSTAT Segment Files). $Sales\ to\ free\ media_{i,t}$ is the percentage of sales in free media countries, $Sales\ to\ partly-free\ media_{i,t}$ is the percentage of sales in partly free media countries; $Sales\ to\ non-free\ media_{i,t}$ is the percentage of sales from non-free media countries.

Table 3.1 summarises the percentage of foreign sales of firms from 1998 to 2016. On average, sales to individual countries account for 8.2% of total sales during the sample period. Also, for those firms disclosing non-zero foreign sales, the average sales to foreign countries are approximately about 22.9%. Furthermore, on average, foreign sales are monotonically increasing from 2.6% in 1998 to about 10.4% in 2016. This pattern is also similar to the percentage of foreign sales for firms with positive individual disclosure sales, which increases from 13.5% in 1998 to 24.8% in 2016.

Further, Table 3.1 also presents the summary statistics for the percentage of foreign sales in each category of media freedom countries. During the period from 1998 to 2016, average sales to countries with free media freedom account a more substantial proportion in total sales (5.5%) compared to sales to countries with partly free media (0.8%) and non-free media (1.8%). For the firms with positive individually disclosed foreign sales, sales to free media countries account 15.9%, while there are 2.1% and 4.9% of sales, respectively, to partly free media countries and non-free media countries.⁷

[Insert Table 3.1 here]

3.3.3 Measure of earnings management

To construct a measure of accrual-based earnings management, I employ the modified Jones (1991) model of Dechow et al. (1995) and take the absolute value of the discretionary accruals calculated from this model. The estimate is calculated separately for each two-digit SIC industry-year group, using all observations for each two-digit SIC industry-year group with available data on the COMPUSTAT database. Based on previous empirical estimates for earnings management, I only take into account each industry-year group, which has at least ten observations.

3.3.4 Control variables

Following the previous empirical papers about the determinants of accrual-based earnings management (Kim et al., 2012; Zang, 2012; Ali and Zhang, 2015;

⁷This is relatively comparable to the percentage of good exports that accounts in U.S. GDP for 1998 and 2016. Specific information about exports of goods from the U.S. to all countries with indexed freedom level is reported in Appendix 3.B. Export data is collected from the U.S. Census Bureau <https://www.census.gov/foreign-trade/balance/index.html> and GDP data is from the U.S. Bureau of Economic Analysis <https://www.bea.gov/itable/>. Further, I also report the percentage of sales to each country with different media categories in Appendix 3.C.

Irani and Oesch, 2016), a set of control variables is added to the main regressions: Firm size (Size) – natural logarithm of total assets, growth opportunities (MTB) – market-to-book ratio, operational performance (ROA) – return on assets, Leverage (Leverage) – Long-term debt over total assets and real earnings management (REM).⁸

Additionally, media freedom is associated with country-level economic growth and helps to transmit information to investors on the market (Bushman et al., 2004). Therefore, I include additional country-level control variables to alleviate this concern. First, I add GDP growth, $\ln(\text{GDP})$ and CPI to control for the time-varying macroeconomic characteristics relating to financial development and economic growth of customers' countries. Country-level control variables are collected from the World Development Indicators website.

Moreover, Gentzkow et al. (2006) suggest that media freedom could reduce and deter the value-destroying activities that firms are unwilling to voluntarily report, including corruption and fraud. Also, prior studies of Leuz et al. (2003) and McLean et al. (2012) show that the quality of country corporate governance has direct effects on corporate policies, operational environment and structure. Thus, country governance plays a particularly important role in media independence. To control for quality of country governance of firm foreign product markets, I construct the sales-weighted average country governance index based on two steps. First, following Karolyi and Taboada (2015), I construct country governance index of each country based on the first principal component of five composite governance indicators: control of corruption (CC), government effectiveness (GE), rule of law (RL),

⁸Real earnings management is calculated as $-(\text{REM}_{\text{CFO}} - \text{RM}_{\text{DISX}})$. My results are robust to alternative measure of real earnings management $-(\text{REM}_{\text{PRO}} - \text{RM}_{\text{DISX}})$.

regulatory quality (RG) and political stability (PS).⁹ Next, I take the sales-weighted average of the country governance index for each country (CGI).¹⁰

Additionally, following the previous literature about the relationship between tax and earnings management of Badertscher et al. (2009), Desai and Dharmapala (2006) and Dyreng et al. (2012a), I add the tax haven indicators of foreign trading partners as a control variable.

Summary statistics of the variables and control variables are reported in Table 3.2. The detailed definitions of the variables are described in Appendix 3.A. Also, Table 3.3 presents the correlation matrix between variables using in the regressions. The correlation between *Media restriction* and accrual-based earnings management (*Earnings management*) is positive and statistically significant.¹¹

[Insert Table 3.2 and 3.3 here]

3.4 Empirical results

3.4.1 Freedom of the press and earnings management

Baseline findings

I investigate the relationship between freedom of the press and earnings management based on the following model:

$$Y_{i,j,k,t} = \alpha + \beta \text{Media Restriction}_{i,t} + \gamma Z_{1,i,t} + \theta Z_{2,j,t} + a_{k,t} + \epsilon_{i,j,k,t} \quad (3.2)$$

⁹I do not include the voice and accountability index (VA) to construct the country governance index because this index could include media freedom. However, my results are robust to including voice and accountability index (VA)

¹⁰I follow Curti and Mihov (2018) to rescale the indices by dividing these indices to 10 and transform them to be non-negative data.

¹¹Further, the coefficients between dependent variables are relatively low and the absolute value of the highest coefficient is 0.566. Thus, it is expected not to have multicollinearity.

where $Y_{i,j,k,t}$ or (*Earnings management* $_{i,j,k,t}$) is accrual-based earnings management of firm i that has sales in a number of countries j in industry k in year t . *Media Restriction* $_{i,t}$ is the proxy for the media freedom. $Z_{1,i,t}$ is a vector of controls for firm characteristics. $Z_{2,j,t}$ is a vector of controls for foreign product market characteristics. $a_{k,t}$ controls for industry-year fixed effects.¹² Industry-year fixed effects are included to control for industry characteristics and overall macroeconomic factors changing in a certain year. Industries are based on two-digit SIC codes. I also use robust standard errors clustered at the firm level (Petersen, 2009).

Results are presented in Table 3.4. Across all columns, I find a significant positive relationship between the exposure to countries with low media freedom and the accrual-based earnings management, after controlling firm and foreign product market characteristics. In columns 1 and 2, I report the results for the relationship between media restriction of firms' export markets and earnings management for all available firms, including firms without foreign sales. Column 3 is the baseline model which focuses on firms disclosing information about their foreign product markets. Column 4 shows the relationship between the percentage of sales in each media freedom category and earnings management. Columns 5 and 6 show the main results with firm-fixed effects. In general, the coefficients of *Media restriction* and *Sales to non-free media countries* are positive and statistically significant at the level of 1%.

Based on the estimate in column 3 of Table 3.4, a one-standard-deviation increase in *Media restriction* increases accrual-based earnings management by approximately 5.88% of the sample mean. This is economically significant. For example,

¹²I also use firm fixed effects across all regressions to control for time-invariant firm characteristics.

Dyreng et al. (2012b) and Liu (2016) find that a one-standard-deviation increase in religious adherence and corruption culture in their respective samples increases accrual-based earnings management by 2.3% of the mean.

[Insert Table 3.4 here]

Further, among control variables, in particular the results reported in columns 3 and 4, I find that the coefficient on *Size* is negative and statistically significant, consistent with the argument that smaller firms are less likely to be subjected to political costs and therefore report more aggressively (Watts and Zimmerman, 1986). The coefficient on *MTB* is statistically positive, suggesting that firms with high growth prospects are more likely to inflate earnings due to the concern about missing earnings benchmarks (Frankel et al., 2002). The coefficient on *ROA* is significant negative, consistent with the result in Lee and Masulis (2011). They argue that companies with good performance have lower incentives to inflate earnings. The coefficient on *Leverage* is negative and statistically significant, suggesting that high leveraged firms tend to be distressed companies undergoing contractual renegotiation which incentives firms to reduce earnings (Becker et al., 1998). Finally, the coefficient on real earnings management *REM* is negative and statistically significant, showing a trade-off relationship between accrual-based earnings management and real earnings management as in (Zang, 2012).

Types of media freedom and accrual-based earnings management

The above results show the effect of media freedom in general. To further understand different aspects of media freedom, I examine how different types of media freedom affects accrual-based earnings management. Freedom House database

classifies media freedom into three categories: freedom in legal aspects, freedom in political issues and freedom in economic news. Hence, I re-estimate my baseline regressions with these three independent variables, separately: *Restriction*_{ECONOMIC}, *Restriction*_{LEGAL}, *Restriction*_{POLITICAL}. The results reported in column 1 to column 3 of Table 3.5 show the effects of media freedom in economic, legal political aspects on earnings management. I find that the coefficients on *Restriction*_{ECONOMIC}, *Restriction*_{LEGAL}, *Restriction*_{POLITICAL} are statistically significant at the level of 1%. In additional, F-tests show that there is no significant difference between these three coefficients (prob > Chi2 = 0.3151). Therefore, this result suggests that media freedom in term of economic, political and legal factors is important, and that these three aspects together affect accrual-based earnings management of firms.

[Insert Table 3.5 here]

Furthermore, columns 5 and 6 of Table 3.5 show analysis on the specific direction of accrual-based earnings management as in Yu (2008) and Kim et al. (2012). The coefficient of *Media restriction* is positive (0.115) and statistically significant at the level of 1% for the subsample with the positive discretionary accruals. This result suggests that managers are more likely to manage earnings through income-increasing activities when firms have a high fraction of sales in countries with low media freedom.

3.4.2 Endogeneity tests

One concern that might affect the main result in this paper is that the choice to trade with foreign partners may not be random. Firms with a high probability to engage in earnings management can self-select to trade in a country with low media

freedom to match with their strategies. Alternatively, the media freedom of foreign product markets and earnings management could be jointly determined by unobservable firm characteristics. Therefore, in this section, I use different approaches to partially alleviate these concerns.

Using a sample of firms tradings with countries that experienced a change in media freedom

First, I examine the earnings management activities for a set of firms that have at least one partner that switched in media freedom from high to low free media, and from low to high media freedom. Moreover, in this sub-test, I only investigate firms that have no change in sales relationship or no new sales relationship with other countries during my sample period.

In general, Freedom House changes status in media freedom of a country when there is a change in attacks against journalists such as harassment, physical violence and death threats, or when there is an exogenous impact on independent media ownership. Thus, the change of status itself reflects the changes in media freedom or quality of news revealed by media within the country.

Particularly, since firms have many trading countries within a year, I manually read and check foreign sales to identify the changes in trading partners. Panel A of Table 3.6 presents the regression results. The results based on the subsample of firms with changes from high to low media freedom in their foreign trading partners reported in columns 1 and 2 of panel A show that the proxies for media freedom (*Media restriction* and *Sales to non-free media*) are statistically significant and positive with accrual-based earnings management. Conversely, as in columns 3 and 4, I find

that firms having a positive change in media freedom do not engage in accrual-based earnings management. This finding implies that when there is a switch from high to low media freedom from firms' trading partners, managers can take advantage of such situation to engage more in earnings management which supports my baseline findings.

[Insert Table 3.6, panel A here]

Using a difference-in-differences analysis

The results thus far provide evidence of the media freedom of foreign customers influencing firms' earnings management by using subsamples of firms with a change in media freedom of foreign product partners. To further mitigate possible identification issues, I attempt to strengthen my inferences by using a source of variation in the information quality.

Particularly, Dyck et al. (2008) state that foreign media can partially disseminate information about countries with low media freedom. Therefore, in this subsection, I use the changes in efficiency of access to foreign information for U.S. firms – the introduction of a new product of Dow Jones News Services in 2003, namely *NewsPlus*. This is a platform designed to facilitate the speed to access relevant and critical information beyond thousands of daily news articles. Specifically, *NewPlus* introduces some features such as providing more powerful search tools to navigate news stories and sort news based on subscribers' demand, including updated reference and financial market overview with customisable filters. As a result, after the launch of the *NewsPlus* platform, Dow Jones News provides to U.S. investors more information foreign product markets.¹³ As hypothesised, when a firm has a

¹³It was introduced from the President of Dow Jones Newswire that new platform *New-*

high share of sales in countries with low media freedom, U.S domestic investors have challenges to verify information about foreign segments as well as foreign barriers to the U.S. firms. Consequently, after the implementation of the new platform, media quality improves, and information about foreign product markets is more transparent. Therefore, this new platform could reduce earnings management of firms that were enable to hide from scrutiny more easily before the introduction of *NewsPlus*. In other words, I expect a negative relationship between media restriction of foreign product markets and accrual-based earnings management post-News Plus.

To conduct this test, I focus on a subsample with treatment and control groups that are constructed based on a propensity score matching procedure between firms in the top and bottom quartile of having trades with low media freedom countries to ensure that treatment and control groups are similar pre-event. I use *Post* as an indicator variable that takes the value of one if year *t* is after 2003 and zero otherwise. The results are presented in panel B – Table 3.6. I find that the positive impact of exposure to countries with low media freedom and accrual-based earnings management becomes less pronounced after the introduction of the NewsPlus platform. In particular, the interaction terms *Media restriction*Post* and *Sales to non-free media* Post* are negative and statistically significant at the level of 1%. This result suggests that after the introduction of the new platform, the quality of media has become significantly stronger, which makes firms exposed to countries with low media freedom reduce their accrual-based earnings management.

[Insert Table 3.6, panel B here]

Collectively, after controlling for some potential endogeneity issues, my main

Plus would be a valuable tool for accessing and using the crucial news about firms' practices and customers (<https://www.businesswire.com/news/home/20030326005075/en/Dow-Jones-Newswires-Launches-Dow-Jones-NewsPlus>)

findings suggest that media freedom plays a significant role in reducing firm earnings management.

3.5 Economic mechanisms

My main findings so far show that firms with a large share of sales in countries with low media freedom engage in accrual-based earnings management. In this section, I extend the main analysis by showing possible economic mechanisms through which media freedom of foreign product markets could affect accrual-based earnings management. My results show that the effect of media freedom in foreign product market on accrual-based earnings management depends on how U.S. domestic investors process foreign information.

3.5.1 Geography of information

Anderson and Van Wincoop (2003) show that geographic distance influences the trade activities of firms. Moreover, U.S. analysts located close to firms' headquarters issue more precise earnings forecasts (Malloy, 2005). Therefore, from U.S. investors' point of view, information about countries that are closer to the U.S. (e.g., Canada or Mexico) would be more transparent and easier to approach than information about countries that are further away (e.g., Philippines or Africa). If media freedom in foreign countries affects the U.S. domestic investors' information processing, I expect the effect of media freedom to be more salient in the subsample with a higher share of sales in countries that are far from the U.S.

I partition my sample based on the distance of foreign partners from the U.S. Following Ahern et al. (2015), I calculate the geographic distance between capitals

using the great circle formula.¹⁴ Then, I construct a proxy for a geographic distance to foreign product markets based on the sales-weighted average of each foreign product market. A firm is categorised in a far subsample if the sales-weighted average of geographic distance is in the top quartile group. In contrast, if a firm is in the first quartile group, I classify that firm into the close subsample.

Columns 1 and 2 of Table 3.7 present the results. Consistent with my expectation, the finding indicates that media restriction affects accrual-based earnings management in the subsample with a large fraction of countries further away from the U.S. In contrast, media restriction does not exert a statistically significant effect on accrual-based earnings management in the subsample where partners are closer to the U.S. firms.

[Insert Table 3.7 here]

3.5.2 Language barriers

Moreover, Brochet et al. (2016) find that conference calls of firms located in countries with greater language distance from English are more likely to have non-plain English and erroneous expressions. Based on this argument, I suggest that U.S. investors may encounter difficulties to obtain relevant information about foreign product markets because of the language barrier in countries with low media freedom.

This test is based on the language barrier proxy:¹⁵ difference in English speak-

¹⁴Longitude and latitude data are extracted from CEPII database: <http://www.cepii.fr/cepii/en/bdd.modele/bdd.asp>

¹⁵Ahern et al. (2015) use the same language as a control variable for the difference in culture between acquirers and targets. Based on this intuition, I construct the language barrier variable based on English language in each country and the U.S. Main languages of each country are collected from the United Nation website: <http://data.un.org/DataMartInfo.aspx>. Furthermore, the fraction of native English speakers in one country is quite sticky; hence, for countries without available data for a certain year (or period), I will use the data available on the Ethnologue website:

ing population and English national language. For each country-year specific measure, I construct the language variables relied on the sales-weighted average of these variables. In the first sub-test based on English national language, a firm is classified into English-speaking group if at least one trading partner is using English as the statutory national language. Further, in the second sub-test based on the difference in language, a firm is categorised in a low subsample if the sales-weighted average of the difference in the proportion of the population who can speak English is in first quartile group. In contrast, a firm that is in a high subsample if the firm is in the top quartile group.

Columns 3 to 6 of Table 3.7 present the results. I find that the effect of media restriction on accrual-based earnings management is statistically significant in subsamples of firms with high language barrier: countries that do not use English as the national language or countries with a low proportion of the population speaking English.

3.5.3 Institutional investors

Furthermore, institutional investors are more likely to have a better understanding of firm activities because they have more information and more sophisticated activities Bushee (1998, 2001). As a result, the significant presence of institutional ownership could increase the probability to have more information about foreign product markets. Hence, the effect of media restriction on earnings management would appear in a subsample with the smaller presence of institutional ownership. The results reported in columns 7 and 8 of Table 3.7 support my expectation.

I find that the positive relationship between media restriction and accrual-based

<https://www.ethnologue.com/language/eng>.

earnings management is statistically significant at the level of 1% when firms have a lower proportion of institutional ownership.

Collectively, the findings in this section suggest that media freedom in foreign countries affects US domestic investors' information processing through which the media freedom of foreign product markets has an impact on accrual-based earnings management.

3.6 Additional analyses

3.6.1 Costs of accrual-based earnings management

Based on the results in the above sections, when firms have a high percentage of sales in countries with low media freedom, managers engage more in accrual-based earnings management. This section takes a further look at how accrual-based earnings management varies under the high cost of this method.

Previous literature has documented that scrutiny from external monitors and accounting flexibility constrain accrual-based earnings management (Zang, 2012; Irani and Oesch, 2016). In particular, accrual earnings management activities are more likely to be detected by auditors and regulators. High quality auditors are expected to be more experienced and can limit extreme accounting choices made by managers (Becker et al., 1998). Furthermore, auditors with knowledge of the industry may have the ability to detect and impede earnings management (Balsam et al., 2003). Another factor that constrains accrual-based earnings management is flexibility within firms' accounting systems. Barton and Simko (2002) find that managers are limited in their earnings management strategy through accrual-based activities if firms are inflexible due to a high risk of being detected by auditors and

of violating GAAP.

Hence, in this section, I use audit industry specialisation and net operating assets at the beginning of the year as a proxy for auditor scrutiny and accounting flexibility, respectively, to test for costs associated with accrual-based earnings management. I also split the sample into two groups: high and low costs based on the median of cost variables.

[Insert Table 3.8 here]

The results of this analysis are illustrated in Table 3.8. Columns 1 and 2 of Table 3.8 show how auditors (based on audit industry specialisation) affects earnings management. Particularly, the estimated coefficient on *Media restriction* is positive and statistically significant for accrual-based earnings management in columns 1 and 2. Similarly, it is found that, for a group of firms where accounting flexibility is low, firms with a high percentage of sales in countries with low media freedom still engage in accrual-based earnings management.

These results suggest that firms with a high percentage of sales in countries with low media freedom engage in accrual-based earnings management regardless of the costs of being scrutinised by auditors or regulatory. Thus, this finding implies that it is easier to manage earnings by taking advantage of the non-transparent environment created by media restriction in the foreign product market.

3.6.2 Opportunistic insider trading

In addition to the earnings management, in this section, I also examine the relationship between media freedom and opportunistic insider trading to show further how media freedom of foreign product market affects the probability of having

corporate misconduct. Prior studies show that when insiders trade on non-public information for their private benefits, firms are more likely to have corporate misconduct (Cumming et al., 2015; Liu, 2016). Opportunistic insider trading occurs when insiders trade on non-public information for their private benefits. Hence, under the restriction on media freedom, insiders could enrich their benefits by trading on non-public information. I find that media restriction increases opportunities for insiders to trade on non-public information. Table 3.9 presents the relevant analysis.

[Insert Table 3.9 here]

Table 8 shows regression models for two dependent variables: a price pattern of insider purchases and a price pattern of insider sales. To identify whether insiders trade on non-public information, I calculate the proportion of market-adjusted gross return over the 20 days after the insider transaction and market-adjusted gross return over the 20 days before the insider transaction [as in Liu (2016) based on a measure of Rozanov (2008)]. This measure indicates that if insiders trade on private information through purchases, they will gain more after these transactions. In other words, the ratio should be higher for more favourable insider purchases (Liu, 2016). Conversely, this ratio should be lower for more favourable insider sales when insiders trade on non-public information.

To do this analysis, I use data from the Thomson Reuters Insiders database to collect insider-trading data and focus on transactions with the cleansing code of either H or R that excludes option exercises. Besides, I also average the price pattern ratio across transaction days within a given year to have a firm-year price pattern ratio. Insiders used in my sample are all officers and directors.

I find that in column 1 reported in Table 3.9, the coefficient on media restric-

tion is positive and statistically significant, suggesting that media restriction affects insiders' ability to profit from purchases via private information-based trades. Based on this estimate, a one-standard-deviation increase in media restriction on the price pattern ratio is associated with a rise of 1.10% in the price pattern. The effect of media restriction on the price pattern of insiders purchases is economically meaningful. By way of comparison, Liu (2016) finds that a one-standard-deviation decrease in corporate corruption is associated with a reduction of 0.86% in the price pattern of insider purchases. Additionally, column (3) examines the relationship between media restriction and the price pattern of insider sales and shows a negative and statistically significant coefficient on media restriction which suggests that insiders of these firms also gain benefits from their transactions.

Together with the results on earnings management, the evidence shows a fairly consistent picture, suggesting that firms with a large share of sales in countries with low media freedom take advantage of the low quality of media to engage in earnings management and opportunistic insider trading, which could increase the probability of having corporate misconduct.

3.7 Robustness tests

3.7.1 Alternative measures and model specifications

The association between media freedom and earnings management activities is robust to the alternative procedure in regression of media freedom on earnings management. I test this with a one-step procedure and alternative measure of accrual-based earnings management (panel A of Table 3.10).

[Insert Table 3.10, Panel A here]

Column 1 shows the measure with total accruals using the one-step procedure as in Chen et al. (2018). Column 2 and 3 show my replication for the baseline regressions using discretionary accruals calculated following Kothari et al. (2005) and McNichols (2002). I find that the coefficient of *Media restriction* remains positive and statistically significant in all these regressions.

Additionally, I use the interaction term between the percentage of foreign sales to each country to total foreign sales and the foreign sales-weighted score of the difference in media freedom *Foreign Sales*WSCORE* as the alternative measure for main measure *Media restriction*. This construction considers how foreign sales in countries with low media freedom affect earnings management. Column 4 shows that the coefficient on *Foreign Sales*WSCORE* is positive and statistically significant, supporting the results based on my main measure of media freedom.

3.7.2 Control for characteristics of subsidiaries

Recent work further tests whether firms manage earnings at their headquarters or at their subsidiaries and shows that headquarters affect subsidiary earnings management policies directly (Beuselinck et al., 2019). They argue that MNC-parents have a stronger influence on subsidiaries when these subsidiaries bear the same name as their parents or when interlock directors control their subsidiaries.¹⁶ Also, firms are more likely to manage earnings more in foreign subsidiaries because foreign subsidiaries are located far from SEC premises (Kedia and Rajgopal, 2011). Therefore, to control for these effects, I conduct further analyses, including a set of control

¹⁶Beuselinck et al. (2019) show the analyses on the degree of subsidiary integration and the extent of subsidiary earnings management opportunities based on different proxies. However, due to the limitation on data, in this paper, I only focus on subsidiaries with same names as parents' names (collected based on SEC EDGAR Exhibit 21) and interlock directors (collected from BoardEx and manually read all profiles).

variables for subsidiary characteristics.

I use the data from Dyreng et al. (2012a) to identify the subsidiaries of firms for a period from 1998 to 2013 and manually update this information based on SEC EDGAR Exhibit 21 from 2014. Then, I check if subsidiaries have the same names as parent firms. Also, I manually read the profiles of directors on board using BoardEx database to check whether these directors are sitting on the board of subsidiaries. Table panel B of Table 9 reports the results. I find that the effect of media restriction on earnings management activities does not change after including control variables for subsidiaries' characteristics.

[Insert Table 3.10, Panel B here]

3.7.3 Control for corporate governance factors

Besides, other corporate governance channels can constrain managers' earnings management activities. Thus, I add several corporate governance variables in the regression to control for the alternative corporate governance channels. These variables include an external corporate governance channel (analysts following) and internal corporate governance variables (board independence, board size and CEO duality). The results in Table 3.10 – panel C show that the coefficient of *Media restriction* is positive and statistically significant in regressions with *Earnings management*. Therefore, the effect of media freedom and earnings management activities is not driven by omitted corporate governance variables.

[Insert Table 3.10, Panel C here]

3.8 Conclusion

When the capital market realises opportunistic insider activities, it may result in negative market consequences such as a higher cost of capital (Aboody et al., 2005; Francis et al., 2008). Media plays a role in disseminating news to the market and monitoring firm activities. Therefore, it is crucial to look at the relationship between the quality of media and corporate misconduct. In this paper, I examine the effect of media freedom on earnings management and opportunistic insider trading by using the sales-weighted average of difference in media restriction of a firm's export market. When firms are exposed to countries with high media restriction, managers are more likely to take advantage of the low quality of the press and engage in accrual-based earnings management and opportunistic insider trading. These results are robust to multiple identification strategies, characteristics of subsidiaries and corporate governance factors. The effect of exposure to countries with high media restriction on corporate misconduct depends on how U.S. domestic investors process foreign information. My paper adds to the literature on the relation between media freedom and firm activities. This paper also contributes to the literature on the spill-over effect of institutional characteristics of the product markets on firms headquartered in the U.S. by showing that media freedom of foreign product markets has an impact on corporate misconduct, regardless of having subsidiaries in those markets.

3.9 Tables of Chapter 3

Table 3.1 – Percentage of foreign product markets

This table reports the percentage of sales to countries in different categories of media freedom for all non-financial S&P 1500 firms from 1998 to 2016. *All* is the percentage of sales of individual disclosed foreign sales. *Sales to free media* is the percentage of sales to free media countries, *Sales to partly-free media* is the percentage of sales to partly free media countries; *Sales to non-free media* is the percentage of sales to non-free media countries

Year	All firms				Firms with positive individually disclosed foreign sales			
	All	Sales to free media	Sales to partly-free media	Sales to non-free media	All	Sales to free media	Sales to partly-free media	Sales to non-free media
1998	0.026	0.025	0.001	0.000	0.135	0.129	0.006	0.000
1999	0.059	0.05	0.004	0.005	0.186	0.157	0.014	0.015
2000	0.065	0.054	0.006	0.005	0.192	0.159	0.017	0.016
2001	0.063	0.055	0.004	0.004	0.200	0.174	0.012	0.014
2002	0.064	0.054	0.003	0.007	0.200	0.169	0.01	0.021
2003	0.069	0.056	0.005	0.008	0.207	0.169	0.014	0.024
2004	0.077	0.06	0.005	0.012	0.223	0.174	0.014	0.035
2005	0.079	0.06	0.005	0.014	0.224	0.171	0.015	0.038
2006	0.082	0.062	0.006	0.014	0.228	0.171	0.017	0.040
2007	0.088	0.064	0.007	0.017	0.244	0.177	0.02	0.047
2008	0.087	0.061	0.009	0.017	0.24	0.168	0.024	0.048
2009	0.091	0.059	0.010	0.022	0.256	0.166	0.029	0.061
2010	0.094	0.055	0.011	0.028	0.263	0.155	0.031	0.077
2011	0.098	0.057	0.013	0.028	0.269	0.155	0.036	0.078
2012	0.102	0.058	0.014	0.030	0.271	0.154	0.036	0.081
2013	0.102	0.058	0.012	0.032	0.262	0.149	0.03	0.083
2014	0.102	0.057	0.012	0.033	0.261	0.146	0.031	0.084
2015	0.099	0.056	0.011	0.032	0.249	0.141	0.027	0.081
2016	0.103	0.055	0.011	0.037	0.248	0.135	0.025	0.088
1998 - 2016	0.082	0.056	0.008	0.018	0.229	0.159	0.021	0.049
Observations	19371				6710			

Table 3.2 – Summary statistics

Descriptive statistics are based on a sample of non-financial S&P1500 firms from 1998 to 2016. *Media restriction* is the sales-weighted of the difference in media freedom indices between the U.S. and foreign countries, *Sales to free media* is the percentage of sales to free media countries of individually disclosed foreign sales firms, *Sales to partly-free media* is a percentage of sales to partly free media countries; *Sales to non-free media* is a percentage of sales to non-free media countries. Other variable characteristics are reported in Appendix A.

	N	Mean	Median	Q1	Q3	Std. dev.
All firms						
Media restriction	19371	0.013	0.000	0.000	0.001	0.052
Sales to non-free media	19371	0.017	0.000	0.000	0.000	0.079
Sales to non-free media	19371	0.008	0.000	0.000	0.000	0.043
Sales to non-free media	19371	0.055	0.000	0.000	0.069	0.113
Foreign Sales	19371	0.081	0.000	0.000	0.098	0.164
WSCORE	19371	0.037	0.000	0.000	0.010	0.110
Earnings management	19371	0.052	0.034	0.015	0.066	0.059
REM	19371	-0.002	0.020	-0.110	0.132	0.240
Size	19371	7.177	7.067	6.021	8.26	1.645
MTB	19371	3.156	2.304	1.456	3.739	3.77
ROA	19371	0.038	0.053	0.016	0.090	0.113
Leverage	19371	0.182	0.155	0.008	0.283	0.186
Price Pattern _{Purchases}	8084	1.098	1.055	0.979	1.164	0.239
Shares traded _{Purchases}	8084	0.001	0.000	0.000	0.000	0.002
Price Pattern _{Sales}	12542	0.963	0.970	0.924	1.000	0.100
Shares traded _{Sales}	12542	0.005	0.002	0.000	0.005	0.012
Firms with positive individually disclosed foreign sales						
Media restriction	6710	0.038	0.004	0.001	0.03	0.083
Sales to non-free media	6710	0.050	0.000	0.000	0.006	0.128
Sales to non-free media	6710	0.022	0.000	0.000	0.000	0.071
Sales to non-free media	6710	0.160	0.123	0.061	0.223	0.143
Foreign Sales	6710	0.233	0.162	0.090	0.0313	0.206
WSCORE	6710	0.105	0.030	0.010	0.136	0.166
Earnings management	6710	0.051	0.034	0.015	0.065	0.057
REM	6710	0.001	0.019	-0.102	0.127	0.222
Size	6710	7.437	7.394	6.313	8.489	1.599
MTB	6710	2.977	2.253	1.473	3.613	3.239
ROA	6710	0.039	0.053	0.016	0.089	0.108
Leverage	6710	0.177	0.159	0.02	0.269	0.166
GDP growth	6710	1.634	1.315	0.513	2.556	2.071
Ln(GDP)	6710	9.570	9.805	8.865	10.458	1.014
CPI	6710	1.248	0.907	0.346	1.796	1.604
CG index	6710	0.345	0.306	0.162	0.510	0.215
Tax haven	6710	0.130	0.000	0.000	0.000	0.336
Price Pattern _{Purchases}	2261	1.095	1.055	0.983	1.156	0.238
Shares traded _{Purchases}	2261	0.001	0.000	0.000	0.000	0.002
Price Pattern _{Sales}	4419	0.964	0.973	0.930	1.000	0.082
Shares traded _{Sales}	4419	0.005	0.001	0.000	0.005	0.010

Table 3.3 – Correlation matrix

This table shows the correlation matrix between all variables using in the main regressions based on a sample of S&P1500 firms from 1998 to 2016. *, **, *** indicate significance level at 1 per cent, 5 per cent and 10 per cent, respectively. All variable are defined in Appendix A.

[illegible]

Table 3.4 – Freedom of the press and earnings management

This table reports regressions examining the relationship between media freedom and earnings management. The dependent variable: *Earnings management* is accrual-based earnings management based on the modified Jones (1991) of Dechow et al. (1995). *Media restriction* is the sales-weighted difference in media freedom indices, *Sales to free media* is the percentage of sales to free media countries of individually disclosed foreign sales firms, *Sales to partly-free media* is the percentage of sales to partly free media countries of individually disclosed foreign sales firms; *Sales to non-free media* is the percentage of sales to non-free media countries of individually disclosed foreign sales firms. Other characteristics are as in the Appendix. Industry dummies are based on 2-digit SIC codes. Standard errors are reported in parentheses below parameter estimates. Robust standard errors are clustered at the firm level. *, **, *** indicate the significance level at 1 per cent, 5 per cent, and 10 per cent, respectively.

	(1) Earnings management	(2) Earnings management	(3) Earnings management	(4) Earnings management	(5) Earnings management	(6) Earnings management
Media restriction	0.043*** (0.013)		0.063*** (0.019)		0.066*** (0.024)	
Sales to non-free media		0.028*** (0.009)		0.038*** (0.012)		0.038*** (0.014)
Sales to partly-free media		0.004 (0.011)		0.010 (0.012)		0.015 (0.022)
Sales to free media		0.000 (0.005)		0.009 (0.007)		0.018 (0.014)
Size	-0.004*** (0.000)	-0.004*** (0.000)	-0.003*** (0.001)	-0.003*** (0.001)	0.003 (0.002)	0.004 (0.002)
MTB	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
ROA	-0.157*** (0.009)	-0.157*** (0.009)	-0.171*** (0.014)	-0.172*** (0.014)	-0.179*** (0.018)	-0.179*** (0.018)
Leverage	-0.010*** (0.003)	-0.010*** (0.003)	-0.010 (0.006)	-0.010 (0.006)	-0.012 (0.009)	-0.012 (0.009)
REM	-0.014*** (0.003)	-0.014*** (0.003)	-0.010* (0.006)	-0.010* (0.006)	-0.022 (0.014)	-0.022 (0.014)
GDP growth			-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.001)	-0.000 (0.001)
Ln(GDP)			0.002 (0.001)	0.001 (0.001)	0.002 (0.003)	0.002 (0.003)
CPI			0.001 (0.001)	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)
CG index			0.002 (0.006)	0.003 (0.006)	0.009 (0.008)	0.011 (0.008)
Tax haven			0.001 (0.003)	0.000 (0.003)	-0.005 (0.004)	-0.006 (0.004)
Constant	0.087*** (0.003)	0.087*** (0.003)	0.061*** (0.014)	0.062*** (0.014)	0.008 (0.034)	0.006 (0.035)
Observations	19371	19371	6710	6710	6710	6710
Adjusted R^2	0.206	0.206	0.208	0.208	0.271	0.271
Industry*Year FE	Yes	Yes	Yes	Yes	No	No
Firm FE	No	No	No	No	Yes	Yes
Year FE	No	No	No	No	Yes	Yes

Table 3.5 – Freedom of the press and earnings management: Different types of media freedom and earnings management

This panel reports regressions examining the relationship between different types of media freedom and earnings management. The dependent variable: *Earnings management* is accrual-based earnings management based on the modified Jones (1991) of Dechow et al. (1995). *Restriction_{LEGAL}* is the sales-weighted average of the difference in media freedom in legal aspects. *Restriction_{POLITICAL}* is the sales-weighted average of the difference in media freedom in political aspects. *Restriction_{ECONOMIC}* is the sales-weighted average of the difference in media freedom indices in the economic aspects. Other characteristics are as in Table 2 or the Appendix. Industry dummies are based on 2-digit SIC codes. Standard errors are reported in parentheses below parameter estimates. Robust standard errors are clustered at the firm level. *, **, *** indicate the significance level at 1 per cent, 5 per cent, and 10 per cent, respectively.

	(1) Earnings management	(2) Earnings management	(3) Earnings management	(4) Positive Discretionary Accruals	(5) Negative Discretionary Accruals
Restriction _{LEGAL}	0.014*** (0.005)				
Restriction _{POLITICAL}		0.012*** (0.004)			
Restriction _{ECONOMIC}			0.019*** (0.006)		
Media restriction				0.115*** (0.043)	0.003 (0.028)
Size	-0.003*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	-0.007*** (0.001)	-0.002 (0.002)
MTB	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.000 (0.001)	-0.003** (0.001)
ROA	-0.172*** (0.014)	-0.172*** (0.014)	-0.172*** (0.014)	0.183*** (0.034)	0.431*** (0.097)
Leverage	-0.010 (0.006)	-0.010 (0.006)	-0.010 (0.006)	0.004 (0.015)	0.083 (0.065)
REM	-0.010* (0.006)	-0.010* (0.006)	-0.010* (0.006)	0.059*** (0.011)	0.002 (0.070)
GDP growth	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.002)
Ln(GDP)	0.001 (0.002)	0.001 (0.002)	0.001 (0.002)	0.000 (0.002)	0.007 (0.006)
CPI	0.000 (0.001)	0.000 (0.001)	0.001 (0.001)	-0.001 (0.001)	-0.000 (0.001)
CG index	0.003 (0.006)	0.002 (0.006)	0.003 (0.006)	0.016* (0.009)	-0.028 (0.021)
Tax haven	0.001 (0.003)	0.001 (0.003)	0.001 (0.003)	-0.001 (0.005)	0.005 (0.006)
Constant	0.069*** (0.015)	0.069*** (0.015)	0.069*** (0.015)	0.080*** (0.017)	-0.104** (0.050)
Observations	6710	6710	6710	3763	2947
Adjusted R^2	0.206	0.206	0.206	0.139	0.079
Industry*Year FE	Yes	Yes	Yes	Yes	Yes
Panel B: H0: Restriction _{LEGAL} = Restriction _{POLITICAL} = Restriction _{ECONOMIC}					
Chi2		2.31			
Prob > Chi2		0.3151			

Table 3.6 – Endogeneity tests

This table reports regressions examining the relationship between media freedom and earnings management addressed endogeneity issues. **Panel A** reports an endogeneity test using a sample of firms with foreign trading partners having a change in media freedom category. A firm is classified into this sample when that firm does not have changes in trading countries but at least one trading country having a switch in its status from high (low) to low (high) media freedom. **Panel B** shows the effects of a new product of Dow Jones News Service on the relationship between media freedom and corporate earnings management. *Post* is an indicator that takes the value of one if year *t* is after the introduction of NewPlus service of Dow Jones. Other characteristics are as in Table 2, or Appendix A. Industry dummies are based on 2-digit SIC codes. Standard errors are reported in parentheses below parameter estimates. Robust standard errors are clustered at the firm level. *, **, *** indicate the significance level at 1 per cent, 5 per cent, and 10 per cent, respectively.

a – Panel A: Endogeneity tests using a sample of firms with foreign trading partners having a change in media freedom

	Change from high to low		Change from low to high	
	Earnings management	Earnings management	Earnings management	Earnings management
Media restriction	0.079* (0.041)		-0.043 (0.097)	
Sales to non-free media		0.057** (0.024)		-0.006 (0.062)
Sales to partly-free media		0.009 (0.028)		-0.024 (0.047)
Sales to free media		0.037 (0.030)		-0.056 (0.062)
Size	-0.005* (0.002)	-0.005* (0.002)	-0.002 (0.004)	-0.003 (0.004)
MTB	0.003* (0.002)	0.003* (0.002)	0.013*** (0.004)	0.014*** (0.004)
ROA	-0.260*** (0.027)	-0.262*** (0.027)	0.040 (0.099)	0.058 (0.108)
Leverage	-0.044 (0.027)	-0.038 (0.028)	0.091 (0.062)	0.108 (0.066)
REM	-0.010 (0.022)	-0.008 (0.022)	-0.046 (0.047)	-0.048 (0.051)
GDP growth	-0.000 (0.003)	0.000 (0.003)	-0.001 (0.009)	-0.002 (0.009)
Ln(GDP)	-0.001 (0.006)	-0.001 (0.006)	-0.017 (0.011)	-0.016 (0.011)
CPI	0.018*** (0.004)	0.017*** (0.004)	-0.006 (0.008)	-0.006 (0.008)
CG index	-0.081* (0.044)	-0.069 (0.045)	-0.008 (0.095)	-0.043 (0.106)
Tax haven	-0.006 (0.009)	-0.007 (0.009)	0.012 (0.018)	0.009 (0.019)
Constant	0.101* (0.060)	0.091 (0.059)	0.171 (0.106)	0.173 (0.107)
Observations	146	146	39	39
Adjusted R^2	0.503	0.505	0.443	0.415

b – Panel B: Endogeneity tests using difference-in-differences analysis

	(1) Earnings management	(2) Earnings management	(3) Earnings management	(4) Earnings management
Media restriction	0.198*** (0.056)		0.258*** (0.086)	
Media restriction * Post	-0.154*** (0.054)		-0.201*** (0.068)	
Sales to non-free media		0.118*** (0.037)		0.135*** (0.041)
Sales to non-free media * Post		0.011 (0.027)		-0.037 (0.034)
Sales to partly-free media		0.027 (0.022)		0.044 (0.030)
Sales to partly-free media * Post		-0.023 (0.024)		-0.031 (0.026)
Sales to free media		0.001 (0.030)		0.080** (0.036)
Sales to free media * Post		-0.093*** (0.035)		-0.115*** (0.037)
Size	-0.003*** (0.001)	-0.003*** (0.001)	0.008*** (0.003)	0.009*** (0.003)
MTB	0.001*** (0.000)	0.001*** (0.000)	0.001** (0.000)	0.001** (0.000)
ROA	-0.170*** (0.017)	-0.170*** (0.017)	-0.178*** (0.021)	-0.178*** (0.021)
Leverage	-0.015** (0.007)	-0.015** (0.007)	-0.024** (0.012)	-0.020* (0.011)
REM	-0.013* (0.007)	-0.014** (0.007)	-0.027* (0.016)	-0.027* (0.016)
GDP growth	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Ln(GDP)	0.002 (0.002)	0.002 (0.002)	0.005 (0.003)	0.003 (0.003)
CPI	0.001 (0.001)	0.001* (0.001)	0.001 (0.001)	0.001 (0.001)
CG index	-0.001 (0.007)	0.002 (0.007)	-0.001 (0.010)	0.004 (0.010)
Tax haven	0.000 (0.003)	-0.000 (0.003)	0.000 (0.005)	-0.001 (0.005)
Constant	0.054*** (0.015)	0.058*** (0.016)	-0.049 (0.035)	-0.041 (0.034)
Observations	3978	3978	3978	3978
Adjusted R^2	0.223	0.221	0.300	0.301
Industry*Year FE	Yes	Yes	No	No
Firm FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes

Table 3.7 – Economic mechanism: Domestic investors’ information processing and the effect of media freedom

This table reports regressions examining how the information processing of domestic investors affect the relationship between media freedom and earnings management. The dependent variable: *Earnings management* is accrual-based earnings management based on the modified Jones (1991) of Dechow et al. (1995). *Media restriction* is the sales-weighted difference in media freedom. *Geographic distance* is the sales-weighted average of the difference in the distance between the US and foreign countries. *English-speaking countries* is the sales-weighted average of countries with English used as the national language. *Difference in language* is the sales-weighted average of the difference in the proportion of populations speaking English. *Institutional investors* is the fraction of institutional ownership. Other characteristics are as in the Appendix. All specifications include industry and year dummies. Industry dummies are based on 2-digit SIC codes. Standard errors are reported in parentheses below parameter estimates. Robust standard errors are clustered at the firm level. *, **, *** indicate the significance level at 1 per cent, 5 per cent, and 10 per cent, respectively.

	Geographic distance		English-speaking countries		Difference in language		Institutional investors	
	Far (1)	Close (2)	Low (3)	High (4)	Low (5)	High (6)	Low (7)	High (8)
Media restriction	0.063** (0.030)	-0.077 (0.048)	0.091*** (0.017)	0.012 (0.032)	0.094*** (0.023)	0.413 (0.421)	0.079*** (0.023)	-0.001 (0.025)
Size	-0.001 (0.002)	-0.005*** (0.002)	-0.004*** (0.001)	-0.003** (0.001)	-0.002* (0.001)	-0.004*** (0.002)	-0.003*** (0.001)	-0.004*** (0.001)
MTB	0.000 (0.001)	0.000 (0.001)	0.001* (0.000)	0.001** (0.001)	0.001 (0.001)	0.002** (0.001)	0.001* (0.001)	0.001 (0.001)
ROA	-0.173*** (0.021)	-0.140*** (0.028)	-0.160*** (0.017)	-0.168*** (0.021)	-0.159*** (0.022)	-0.153*** (0.031)	-0.152*** (0.023)	-0.168*** (0.026)
Leverage	-0.006 (0.011)	-0.007 (0.013)	-0.007 (0.008)	-0.016 (0.011)	-0.000 (0.010)	-0.017 (0.012)	-0.024** (0.011)	0.006 (0.010)
REM	-0.033** (0.014)	-0.014 (0.010)	-0.010 (0.006)	-0.010 (0.010)	-0.013 (0.012)	0.004 (0.009)	-0.008 (0.008)	-0.013 (0.009)
GDP growth	-0.002* (0.001)	0.002 (0.002)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	0.000 (0.002)	-0.000 (0.001)	-0.000 (0.001)
Ln(GDP)	-0.002 (0.002)	-0.005 (0.006)	0.004*** (0.002)	-0.003 (0.003)	0.003 (0.002)	-0.008 (0.011)	0.001 (0.002)	0.001 (0.002)
CPI	0.004* (0.002)	0.000 (0.002)	0.001 (0.001)	0.001 (0.002)	-0.000 (0.001)	0.004 (0.003)	-0.000 (0.001)	0.001 (0.001)
CG index	0.021 (0.014)	0.009 (0.019)	0.001 (0.007)	0.004 (0.016)	0.007 (0.012)	0.017 (0.022)	0.006 (0.011)	0.000 (0.010)
Tax haven	0.004 (0.005)	-0.002 (0.012)	0.003 (0.005)	0.000 (0.004)	0.004 (0.008)	0.009 (0.009)	-0.004 (0.004)	0.006 (0.004)
Constant	0.070*** (0.023)	0.134*** (0.051)	0.035** (0.015)	0.100*** (0.023)	0.033 (0.023)	0.152 (0.104)	0.063*** (0.021)	0.067*** (0.022)
Observations	1677	1678	4036	2674	1676	1766	2436	2452
Adjusted R^2	0.185	0.143	0.203	0.172	0.191	0.165	0.186	0.158
Industry*Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Test of coefficient differences between two subsamples								
Chi2	6.33		6.48		0.47		4.428	
Prob > Chi2	0.0119		0.0109		0.492		0.0385	

Table 3.8 – Impact of costs to accrual-based earnings management

This table reports regressions examining the effects of costs of using accrual-based earnings management on the relationship between media freedom and earnings management. A firm with above-median audit industry specialisation, *High Audit Industry Specialisation*, or a firm with below-median NOA, *Low Accounting Flexibility*, is assigned to the high-cost of using accrual earnings management. Other characteristics are as in Table 2, or Appendix A. Industry dummies are based on 2-digit SIC codes. Standard errors are reported in parentheses below parameter estimates. Robust standard errors are clustered at the firm level. *, **, *** indicate the significance level at 1 per cent, 5 per cent, and 10 per cent, respectively.

	Audit Industry Specialisation		Accounting Flexibility	
	High (1)	Low (2)	High (3)	Low (4)
Media restriction	0.046* (0.024)	0.096** (0.040)	0.071*** (0.026)	0.046* (0.023)
Size	-0.003*** (0.001)	-0.003*** (0.001)	-0.004*** (0.001)	-0.003*** (0.001)
MTB	0.002*** (0.000)	0.000 (0.001)	0.002*** (0.001)	0.000 (0.000)
ROA	-0.164*** (0.014)	-0.158*** (0.027)	-0.204*** (0.017)	-0.113*** (0.019)
Leverage	-0.013** (0.006)	0.000 (0.012)	-0.014* (0.008)	-0.002 (0.008)
REM	-0.007 (0.007)	-0.016** (0.008)	-0.016* (0.009)	-0.005 (0.007)
GDP growth	-0.001 (0.001)	-0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)
Ln(GDP)	-0.000 (0.002)	0.003 (0.003)	0.002 (0.002)	0.000 (0.002)
CPI	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)	0.002 (0.001)
CG index	0.006 (0.007)	-0.008 (0.011)	-0.002 (0.007)	0.004 (0.009)
Tax haven	0.002 (0.003)	-0.002 (0.005)	0.002 (0.004)	-0.001 (0.004)
Constant	0.075*** (0.016)	0.043* (0.026)	0.061*** (0.018)	0.068*** (0.020)
Observations	4711	1998	3632	3078
Adjusted R^2	0.201	0.194	0.266	0.149
Industry*Year FE	Yes	Yes	Yes	Yes

Table 3.9 – Freedom of the press and opportunistic insider trading

This table reports regressions examining the relationship between media freedom and opportunistic insider trading. The dependent variable *Price Pattern* is the ratio of the market-adjusted gross return over 20 days after insider transactions and the market-adjusted gross return over 20 days before insider transactions. *Media restriction* is the sales-weighted difference in media freedom. *Sales to free media* is the percentage of sales to free media countries of individually disclosed foreign sales firms, *Sales to partly-free media* is the percentage of sales to partly free media countries of individually disclosed foreign sales firms, *Sales to non-free media* is the percentage of sales to non-free media countries of individually disclosed foreign sales firms. *Shares traded* is the number of shares traded divided by the number of shares outstanding. Other characteristics are as in the Appendix. Industry dummies are based on 2-digit SIC codes. Standard errors are reported in parentheses below parameter estimates. Robust standard errors are clustered at the firm level. *, **, *** indicate the significance level at 1 per cent, 5 per cent, and 10 per cent, respectively.

	Purchases		Sales	
	Price pattern (1)	Price pattern (2)	Price pattern (3)	Price pattern (4)
Media restriction	0.248** (0.102)		-0.049* (0.029)	
Sales to non-free media		0.115** (0.058)		-0.033* (0.017)
Sales to partly-free media		0.051 (0.088)		0.038 (0.030)
Sales to free media		-0.029 (0.045)		-0.002 (0.012)
Size	-0.012*** (0.003)	-0.012*** (0.003)	0.006*** (0.001)	0.006*** (0.001)
MTB	-0.000 (0.002)	-0.001 (0.002)	-0.000 (0.000)	-0.000 (0.000)
ROA	-0.219*** (0.063)	-0.219*** (0.063)	-0.004 (0.024)	-0.004 (0.024)
Leverage	0.042 (0.034)	0.041 (0.034)	-0.005 (0.012)	-0.005 (0.012)
CPI	-0.004 (0.003)	-0.005 (0.003)	0.002 (0.001)	0.002 (0.001)
GDP growth	-0.005** (0.003)	-0.005* (0.003)	0.002 (0.001)	0.002* (0.001)
Ln(GDP)	-0.006 (0.009)	-0.009 (0.009)	-0.003 (0.003)	-0.002 (0.003)
CG index	0.086** (0.037)	0.085** (0.038)	0.003 (0.012)	0.001 (0.012)
Tax haven	0.010 (0.017)	0.011 (0.017)	0.002 (0.005)	0.001 (0.005)
Shares traded	0.076 (0.165)	0.087 (0.166)	0.016 (0.090)	0.014 (0.090)
Constant	1.215*** (0.086)	1.252*** (0.085)	0.950*** (0.027)	0.936*** (0.029)
Observations	2261	2261	4419	4419
Adjusted R^2	0.069	0.067	0.058	0.059
Industry*Year FE	Yes	Yes	Yes	Yes

Table 3.10 – Robustness tests

This table shows robustness tests for the regression of earnings management on media freedom. **Panel A** shows regressions examining the relationship between media freedom and earnings management: *Column (1)* shows the one-step regression to identify accrual-based earnings management as in Chen et al. (2018), *Column (2)* and *(3)* show alternative measures based on Kothari et al. (2005) and McNichols (2002), *Column (4)* shows alternative construction of media freedom. **Panel B** reports regressions examining the relationship between media freedom and earnings management, controlling for subsidiaries characteristics. **Panel C** reports regressions examining the relationship between media freedom and earnings management, controlling for corporate governance. All variables are as in Appendix A. Industry dummies are based on 2-digit SIC codes. Standard errors are reported in parentheses below parameter estimates. Robust standard errors are clustered at the firm level. *, **, *** indicate the significance level at 1 per cent, 5 per cent, and 10 per cent, respectively.

a – Panel A: One-step regression on earnings management, alternative accrual-based earnings management measure and alternative media restriction construction

	(1) Total Accruals	(2) ABS Kothari	(3) ABS McNichols	(4) Earnings management
Media restriction	0.038* (0.023)	0.045*** (0.016)	0.063*** (0.017)	
Foregin Sales*WSCORE				0.054** (0.027)
Foreign Sales				0.006 (0.007)
WSCORE				0.001 (0.011)
Size	-0.003** (0.001)	-0.004*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)
MTB	-0.001 (0.002)	0.001 (0.000)	0.001*** (0.000)	0.001*** (0.000)
ROA	0.749*** (0.094)	-0.034*** (0.011)	-0.205*** (0.029)	-0.171*** (0.014)
Leverage	0.028 (0.027)	0.006 (0.010)	-0.005 (0.010)	-0.010 (0.006)
REM	0.039** (0.018)	-0.022*** (0.007)	-0.010 (0.012)	-0.010* (0.006)
GDP growth	-0.001* (0.001)	-0.001 (0.000)	-0.001 (0.001)	-0.001 (0.001)
Ln(GDP)	0.002 (0.002)	0.000 (0.001)	0.002 (0.002)	0.002 (0.002)
CPI	0.000 (0.000)	0.000 (0.001)	-0.000 (0.001)	0.001 (0.001)
CG index	-0.001 (0.006)	0.004 (0.006)	0.005 (0.007)	0.002 (0.006)
Tax haven	0.004 (0.004)	-0.001 (0.003)	-0.001 (0.003)	0.000 (0.003)
1/AT(t-1)	1.157 (0.713)			
(Revt - Rect)/AT(t-1)	-0.015 (0.018)			
PPE/AT(t-1)	-0.034** (0.017)			
Constant	-0.028 (0.032)	0.067*** (0.012)	0.054*** (0.017)	0.058*** (0.019)
Observations	6710	6710	6710	6710
Adjusted R^2	0.280	0.106	0.236	0.208
Industry*Year FE	Yes	Yes	Yes	Yes

b – Panel B: Freedom of the press and earnings management: Controlling for characteristics of subsidiaries

	(1) Earnings management	(2) Earnings management	(3) Earnings management	(4) Earnings management
Media restriction	0.062*** (0.018)	0.062*** (0.018)	0.062*** (0.018)	0.062*** (0.018)
Size	-0.003*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)
MTB	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
ROA	-0.161*** (0.012)	-0.160*** (0.012)	-0.161*** (0.012)	-0.160*** (0.012)
Leverage	-0.009 (0.006)	-0.009 (0.006)	-0.009 (0.006)	-0.009 (0.006)
REM	-0.009* (0.005)	-0.009* (0.005)	-0.009* (0.005)	-0.009* (0.005)
GDP growth	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)
Ln(GDP)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)
CPI	0.000 (0.001)	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)
CG index	0.001 (0.006)	0.001 (0.006)	0.001 (0.006)	0.001 (0.006)
Tax haven	0.000 (0.003)	0.000 (0.003)	0.000 (0.003)	0.000 (0.003)
Foreign subsidiary	-0.001 (0.002)			
Same names		-0.002 (0.002)		-0.002 (0.002)
Interlock directors			-0.015*** (0.005)	-0.015*** (0.005)
Constant	0.061*** (0.014)	0.061*** (0.014)	0.060*** (0.014)	0.061*** (0.014)
Observations	6710	6710	6710	6710
Adjusted R^2	0.205	0.205	0.205	0.205
Industry*Year FE	Yes	Yes	Yes	Yes

c – Panel C: Freedom of the press and earnings management: Controlling for corporate governance factors

	(1) Earnings management	(2) Earnings management	(3) Earnings management
Media restriction	0.061*** (0.018)	0.046** (0.020)	0.046** (0.020)
Size	-0.005*** (0.001)	-0.002*** (0.001)	-0.004*** (0.001)
MTB	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
ROA	-0.161*** (0.012)	-0.159*** (0.015)	-0.159*** (0.015)
Leverage	-0.008 (0.006)	-0.004 (0.008)	-0.003 (0.008)
REM	-0.007 (0.005)	-0.007 (0.006)	-0.005 (0.006)
GDP growth	-0.001 (0.000)	-0.000 (0.001)	-0.000 (0.001)
Ln(GDP)	0.002 (0.001)	0.003 (0.002)	0.003 (0.002)
CPI	0.000 (0.001)	-0.000 (0.001)	-0.000 (0.001)
CG index	0.000 (0.006)	-0.002 (0.007)	-0.003 (0.007)
Tax haven	0.000 (0.003)	-0.000 (0.003)	-0.001 (0.003)
Analysts following	0.000*** (0.000)		0.000*** (0.000)
Board Independence		-0.010 (0.012)	-0.009 (0.012)
Board size		-0.007 (0.005)	-0.005 (0.005)
CEO Duality		-0.003* (0.002)	-0.003* (0.002)
Constant	0.067*** (0.014)	0.068*** (0.018)	0.073*** (0.019)
Observations	6710	5209	5209
Adjusted R^2	0.206	0.196	0.197
Industry*Year FE	Yes	Yes	Yes

3.10 Appendices of Chapter 3

Appendix 3.A. Variable definitions

Variable	Definition	Source
Earnings management variable		
Earnings management	The absolute value of the residual of the abnormal accruals estimation based on the modified Jones (1991) model of Dechow et al. (1995)	COMPUSTAT
Opportunistic insider trading		
Price pattern	The proportion of market-adjusted gross return over the 20 days after the insider transaction and market-adjusted return over 20 days before the insider transaction	Thomson Reuters Insiders
Media freedom variable		
Media restriction	The sales-weighted average of the difference in media freedom between the foreign countries and the US	COMPUSTAT Freedom House
Restriction _{ECONOMIC}	The sales-weighted average of the difference in media freedom in term of economic aspect	COMPUSTAT Freedom House
Restriction _{LEGAL}	The sales-weighted average of the difference in media freedom in term of legal aspect	COMPUSTAT, Freedom House
Restriction _{POLITICAL}	The sales-weighted average of the difference in media freedom in term of political aspect based on total sales	COMPUSTAT Freedom House
Foreign Sales	Foreign sales $\frac{S_{ijt}}{\sum_{j=1}^n S_{ijt}}$	COMPUSTAT
WSCORE	Foreign sales weighted media restriction	COMPUSTAT Freedom House
Sales to non-free media	The percentage of sales in free media countries	COMPUSTAT Freedom House
Sales to partly-free media	The percentage of sales in partly-free media countries	COMPUSTAT Freedom House
Sales to free media	The percentage of sales in non-free media countries	COMPUSTAT Freedom House
Firm control variables		
Size	Natural logarithm of total assets	COMPUSTAT

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Appendix 3.10– continued from previous page

Variable	Definition	Source
MTB	Market-to-Book	COMPUSTAT
Leverage	Long-term debt over total assets	COMPUSTAT
ROA	Return on total assets is calculated as income before extraordinary items divided by total assets	COMPUSTAT
REM _{PROD}	Abnormal production costs computed following Roychowdhury (2006)	COMPUSTAT
REM _{DISX}	Abnormal discretionary expenses computed following Roychowdhury (2006)	COMPUSTAT
REM _{CFO}	Abnormal cash flow from operations computed following Roychowdhury (2006)	COMPUSTAT
REM	Real earnings managements: $REM = -REM_{CFO} - REM_{DISX}$	COMPUSTAT
Country control variables		
GDP growth	The sales-weighted average of the change in GDPs of the countries in which the firms have individually disclosed sales	World Bank
Ln (GDP)	The sales-weighted average of the natural logarithm of GDP per capita of the countries of foreign product markets	World Bank
CPI	The sales-weighted average of the consumer price index for the countries in which the firms have individually disclosed sales	World Bank
CG Index	Country Governance Index: The sales-weighted average of country governance index which is calculated based on a sale weighted of the first principal component of the rule of law indices (RL), control of corruption indices (CC), regulatory quality (RQ) indices, political stability indices and government effectiveness (GE) indices.	World Bank
Tax haven	Dummy variable that equals one if a firm has at least one disclosed country from tax haven country	OECD
Other variables		

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Appendix 3.10– continued from previous page

Variable	Definition	Source
Audit industry specialisation	The dummy variable takes the value of one if the firm is audited by an auditor with the largest market share in the firm's two-digit SIC industry during the year	COMPUSTAT
Accounting flexibility	The net operating assets at the beginning of the year	COMPUSTAT
Total accruals	Total Accruals based on Chen et al. (2018)	COMPUSTAT
Foreign subsidiary	Indicator variable takes the value of one if the company has at least one subsidiary in foreign trading partner countries, and zero otherwise	Dyreng et al. (2012a), SEC EDGARD Exhibit 21
Interlock directors	Indicator variable takes the value of one if at least one subsidiary board member sits on the board of parent and subsidiary board and zero otherwise	BoardEx
Same names	Indicator variable takes the value of one if the subsidiary is named after parent names, and zero otherwise	SEC EDGARD Exhibit 21
Difference in language	The sales-weighted average of the difference in English speaking population which is calculated based on sales-weighted of the difference between the fraction of English speakers in total population in one country and in the U.S.	United Nation; Ethnologue
English speaking countries	The sales-weighted average of English national language which is calculated base on sales-weighted of a dummy variable that takes the value of one if English is the statutory national language	Ethnologue
Geographic distance	The sales-weighted average of geographic distance is calculated as the sales-weighted of geographic distance based on using the great circle formula between capitals	CEPII
Analysts following	Number of analysts following	IBES
Institutional Ownership	The percentage of the institutional ownership	Thomson Reuter
Board Independence	Percentage of independent directors	BoardEx

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Appendix 3.10– continued from previous page

Variable	Definition	Source
Board Size	Natural logarithm of the number of directors on board	BoardEx
CEO Duality	CEO duality	BoardEx

Appendix 3.B. U.S. export of goods

This table shows exports of goods from the U.S. to all countries with indexed freedom levels, total GDP of the U.S. and shares of exports of each group to total GDP of the U.S from 1998 to 2016. Export data is collected from the U.S. Census Bureau, and GDP data is from the U.S. Bureau of Economic Analysis.

Year	Export of goods (in millions)			Shares of GDP			
	Sales to free media	Sales to partly-free media	Sales to non-free media	All	Sales to free media	Sales to partly-free media	Sales to non-free media
1998	464,071.50	135,720.70	66,310.90	0.073	0.051	0.015	0.007
1999	483,611.90	137,338.10	59,450.70	0.070	0.05	0.014	0.006
2000	534,651.70	167,565.70	62,418.10	0.074	0.052	0.016	0.006
2001	490,806.90	155,801.30	65,769.20	0.067	0.046	0.015	0.006
2002	452,160.90	146,846.20	78,724.30	0.062	0.041	0.013	0.007
2003	454,812.80	164,397.20	89,381.50	0.062	0.04	0.014	0.008
2004	520,130.00	189,273.50	102,171.80	0.066	0.042	0.015	0.008
2005	567,074.70	209,364.40	120,476.70	0.068	0.043	0.016	0.009
2006	646,148.00	232,634.30	142,291.50	0.074	0.047	0.017	0.01
2007	716,740.20	263,746.90	161,190.70	0.079	0.050	0.018	0.011
2008	727,340.70	363,742.40	186,134.10	0.087	0.049	0.025	0.013
2009	586,049.60	298,641.10	164,574.70	0.073	0.041	0.021	0.011
2010	647,776.10	235,945.80	386,602.60	0.085	0.043	0.016	0.026
2011	716,117.50	321,332.70	435,669.30	0.095	0.046	0.021	0.028
2012	718,198.40	317,253.00	499,490.90	0.095	0.044	0.02	0.031
2013	728,687.80	302,556.70	536,669.90	0.094	0.044	0.018	0.032
2014	755,069.80	304,987.00	552,501.60	0.093	0.043	0.018	0.032
2015	707,927.60	266,527.70	520,021.10	0.082	0.039	0.015	0.029
2016	682,981.40	256,474.20	502,972.30	0.077	0.037	0.014	0.027
1998-2016				0.078	0.045	0.017	0.016

This table shows exports of goods from the U.S. to each country with indexed freedom levels from 1998 to 2016.

[illegible]

Appendix 3.D. Summary statistics and correlation matrix of country governance components

This table shows the summary statistics and correlation matrix of county governance components in which the firms have individually disclosed sales, which are used to calculate the country corporate governance index based on the first principal component analysis. RL is the weighted average based on foreign sales of the rule of law indices, CC is the weighted average based on foreign sales of corruption indices, RQ is the weighted average based on foreign sales of regulatory quality indices, PS is the weighted average based on foreign sales of political stability indices, GE is the weighted average based on foreign sales of government effectiveness indices, and VA is the weighted average based on foreign sales of voice and accountability indices in which the firms have individually disclosed sales.

Panel A: Summary Statistics

	N	Mean	Median	Q1	Q3	Std. dev.
CC	6710	0.935	0.846	0.220	1.830	0.799
GE	6710	0.928	0.810	0.289	1.737	0.694
PS	6710	0.465	0.377	0.094	0.976	0.505
RQ	6710	0.825	0.702	0.254	1.559	0.652
RL	6710	0.857	0.805	0.219	1.690	0.723
VA	6710	0.660	0.652	0.179	1.333	0.677
Observations	6710					

Panel B: Correlation matrix

	CC	GE	PS	RQ	RL	VA
CC	1.000					
GE	0.981***	1.000				
PS	0.874***	0.861***	1.000			
RQ	0.970***	0.967***	0.813***	1.000		
RL	0.986***	0.974***	0.890***	0.966***	1.000	
VA	0.926***	0.896***	0.838***	0.916***	0.933***	1.000
Observations	6710					

Appendix 3.E. Logit model estimate of the propensity-score-matching procedure

This table reports regressions examining the likelihood that a firm has low media freedom. The dependent variable Low Free Media is a dummy variable that equals one if firms are in the top quartile of weighted distance media freedom. AZ is Altman's Z-score; Sales growth is the annual growth rate of sales; Cumulative returns is cumulative monthly stock returns over the year. Volatility cumulative returns is the standard deviation of stock returns over three years. Cash flow is cash flows from operation scaled by total assets. Volatility cash flow is the standard deviation of cash flow over the past three years. Loss dummy is a dummy variable that takes the value of 1 if firms have a negative operating income. Other characteristics are as in Table 2, or Appendix A. Industry dummies are based on 2-digit SIC codes. p-value are reported in parentheses below parameter estimates. Asterisks indicate significance at 0.01 (***), 0.05 (**) and 0.1 (*) levels. Robust standard errors are clustered at the firm level.

	Low Free Media
Size	0.213*** (0.000)
MTB	-0.015* (0.090)
ROA	0.083 (0.778)
Leverage	-0.565** (0.035)
AZ	0.005 (0.767)
Sales Growth	-0.234*** (0.004)
Cumulative returns	0.043 (0.269)
Volatility cumulative returns	1.022* (0.083)
Cash flow	0.348 (0.444)
Volatility cash flow	0.058 (0.932)
Loss dummy	0.244** (0.046)
Constant	-1.233 (0.110)
Observations	16882
Pseudo R^2	0.093
Year FE	Yes
Industry FE	Yes

Appendix 3.F. Accrual-based earnings management measure

To construct an empirical accrual-based earnings management, I employ the modified Jones (1991) model of Dechow et al. (1995). First, I estimate the following model to find the normal level of accruals for each two-digit SIC industry-year group. The normal level of accruals for each industry-year pair:

$$TA_{it}/A_{it-1} = \lambda_0 + \lambda_1(1/A_{it-1}) + \lambda_2(\Delta REV_{it} - \Delta AR_{it-1})/A_{it-1} + \lambda_3(PPE_{it}/A_{it-1}) + \epsilon_{it} \quad (3.3)$$

where: TA_{it} is the total accruals of firm i in a given year t , defined as the difference between net income and cash flow from operations; A_{it-1} is the total asset of firm i at year $t-1$; (ΔREV_{it}) is the change in revenue in year t ; and PPE_{it} is the gross property, plant, and equipment of firm i in year t . Then, I take the estimated coefficients from equation 3.3 to calculate normal accruals for each firm:

$$NA_{it}/A_{it-1} = \lambda_1(1/A_{it-1}) + \lambda_2(\Delta REV_{it} - \Delta AR_{it-1})/A_{it-1} + \lambda_3(PPE_{it}/A_{it-1}) \quad (3.4)$$

where: NA_{it} is the normal accruals of a given firm in year t , ΔAR_{it} is the change in receivables in year t ; other variables have the same definition as above. Lastly, the absolute value of the difference between total accruals and the predicted firm-level normal accruals is used as a measure for accrual-based management or discretionary accruals (*Earnings management*).

Chapter 4

Political Uncertainty and Private Debt

Contracting: Evidence from the U.S.

Gubernatorial Elections

Abstract

We investigate the effect of political uncertainty on private loan contracts by exploiting the U.S. gubernatorial elections as a source of variation in uncertainty. We show that lenders are more likely to impose financial covenants and state-contingent pricing grids on borrowers headquartered in the states in election years, compared with off-election years. The effects are stronger when the winning voting margins are small, supporting the notion of political uncertainty manifesting itself in loan contracting outcomes. Additionally, consistent with the intuition that uncertainty exacerbates adverse selection problems, the effect of elections is more pronounced among the borrowers with greater information asymmetry. Overall our evidence suggests that gubernatorial elections increase transitory uncertainty, yielding significant impacts on debt contracts and the cost of private debt capital.

Keywords: political uncertainty, gubernatorial elections, private debt contracting, debt covenants.

JEL classification: G32, G38, H70, R50.

4.1 Introduction

How do political frictions play out in capital markets and corporate decisions? The question has received increasing academic interests and media attention. The burgeoning literature assessing such an impact of political uncertainty documents the evidence of its link with corporate investment activities (Julio and Yook, 2012; Gulen and Ion, 2016; Jens, 2017), capital structure (Çolak et al., 2018), asset prices and risk premia (Pástor and Veronesi, 2012, 2013), IPO activity (Çolak et al., 2017), and the prices of corporate bonds (Waisman et al., 2015) and municipal bonds (Gao and Qi, 2019). While this strand of the literature suggests that both firms and investors adjust their strategies to mitigate risks associated with changes in political leadership and economic policies, little is known about how private lenders assess and deal with risks of this kind. Given the unique features of private debt contracting, as well as the growing significance of private loans as a source of capital for many firms, we believe it is important to fill this void in the literature.

By exploiting gubernatorial elections as an exogenous source of variation in political uncertainty, we investigate how this type of uncertainty affects private debt contracts – consisting largely of syndicated bank loans in our sample. Our study highlights, among others, the role of debt contracting mechanisms in alleviating the uncertainty, particularly the one that is transitory. The main economic insights derive in the literature examining how debt contracts are designed to reduce changes in the future circumstances and asymmetric information problems (Garleanu and Zwiebel, 2009; Roberts, 2015; Hollander and Verriest, 2016; Demerjian, 2017). Do lenders require more maintenance covenants in gubernatorial election years to ensure that timely monitoring and transfer of control rights, when necessary, can be

implemented? Do lenders raise loan interest rates outright or are they, given the transitory nature of election-related uncertainty, more likely to require that pricing be contingent upon the evolution of a borrower’s economic fundamental? What role does a borrower’s lending relationship play? We aim to extend the literature by addressing these questions.

For the purpose of our study, using gubernatorial elections as a quasi-natural experiment offers *inter alia* two main advantages. First, as election dates are set by the state laws and thus predetermined, gubernatorial elections are exogenous to firm-specific events or decisions. Like in prior studies (see, e.g., Çolak et al., 2017; Boone et al., 2018), our identification strategy thus mitigates potential endogeneity concern – often associated with index-based measures of uncertainty – that corporate outcomes might drive increases in uncertainty, changes in economic policies, or any political dynamics. Second, the staggered nature of the gubernatorial election cycle – i.e., election years varying across different states – allows us to exploit cross-sectional variation in political uncertainty while differencing out other confounders such as macroeconomic effects. Therefore, gubernatorial election, compared with presidential election, offers a more desirable empirical setting with which reliable statistical inferences can be drawn (Çolak et al., 2017; Dai and Ngo, 2018). During our sample period of 1992–2014, there are 293 gubernatorial elections, whereas there are only six presidential elections. It is also important to note that a governor of each of 50 states possesses a substantial executive power overseeing a wide array of issues, such as state budgets, legislative proposals, and the implementation of state laws.

Using a large sample of U.S. syndicated loans, we document that gubernatorial

elections have significant impacts on lenders' monitoring demand and their demand for state-contingent loan pricing, there yielding important implications for the firms' costs of capital associated with private loans. Our results show that in a gubernatorial election year, lenders are more likely to require maintenance covenants in loans extended to firms headquartered in that state. The number of covenants increases by 0.06 (or 3% with respect to the sample median) in election years, compared with off-election years. To gauge the lenders' monitoring demand in conjunction with political uncertainty, we focus our analysis on financial covenants. It is well-documented in the literature that financial covenants function as a tripwire, serving as an ex-ante commitment to the renegotiation of a contract or the transfer of control rights from equity to debt (Demerjian, 2017; Hollander and Verriest, 2016; Prilmeier, 2017). Our results, therefore, suggest that in response to potential changes in political landscape, lenders increase their monitoring intensity as an attempt to ameliorate the uncertainty about borrowers' future economic circumstances.

Moreover, we document a nuanced yet positive effect of the gubernatorial election on loan pricing. Given the positive effects on stock and bond risk premia of political uncertainty documented by previous studies (Pástor and Veronesi, 2012, 2013; Waisman et al., 2015; Gao and Qi, 2019), one would naturally expect private lenders to command higher interest rates in gubernatorial election years. However, applying higher rates altogether can be inefficient, because much of the uncertainty tied to election outcomes resolves once a new governor takes office. Had lenders implemented such an outright increase across the board, they would undergo a surge of renegotiations in the years following elections. Along these lines, prior literature predicts that facing uncertainty, the contracting parties instead set a pricing

schedule – referred to as performance pricing – conditioned on the measures of creditworthiness of borrowers (see, e.g., Asquith et al., 2005). Armstrong et al. (2010) and Demerjian (2017) show that performance pricing provisions help mitigate costly renegotiations.¹ Consistent with these insights, our evidence shows that gubernatorial election, although exerting little impact on loan spreads per se, does have a large positive effect on the likelihood that a loan contract includes performance pricing provisions. Since the realized changes in loan spreads are not observable, the direct effect on the borrowers’ cost of capital is not quantifiable. However, a 5% increase in the likelihood of performance pricing provisions being included in a contract seems a sizeable impact, enough to discourage firms’ capital raising. It is important to note that our estimate is likely a lower bound, because we do not observe loan contracts that would have required performance-pricing provisions but had not reached an agreement. Our findings therefore indicate that gubernatorial elections have a significant pricing implication for private loan contracts.

To provide evidence corroborating our findings, we extend our analysis in several ways. By splitting covenants and pricing grids into two broad categories, namely, performance- and capital-based ones (Christensen and Nikolaev, 2012), we shed further light on the motivation underlying increases in covenants and performance pricing provisions during gubernatorial election years. Specifically, capital covenants (C-covenants henceforth) are concerned primarily with ensuring enough skin-in-the-game that aligns the interests of debt and equity, whereas performance covenants (P-covenants) mainly play a tripwire role facilitating the timely transfer of control rights to debtholders. Similarly, capital-based pricing grids (*C-grids* hence-

¹In this sense, gubernatorial election is a desirable empirical setting to examine how private lenders, and specialized monitors like banks in particular, deal with transitory uncertainty.

forth) and performance-based pricing grids (*P-grids*), respectively, can be viewed as a description of compensation required by lenders commensurate with a borrower's capital adequacy and future profitability, respectively. We show that all types of covenants and pricing grids become more prevalent during gubernatorial election years. Although an increase in C-grids is insignificant, the weak effect seems substituted for by a significant increase in credit-rating grids (*Rating-grids*). These results taken together indicate that lenders, in response to increased political uncertainty, place emphasis on both ex-ante and ex-post monitoring roles of covenants. That is, lenders' actions derive in, it seems, not just the risk-shifting concern but also the lack of relevant information in setting initial contracts during election years.

To sharpen our analysis, we zoom into potential economic mechanisms underlying the link between debt contracting outcomes and gubernatorial elections we find. As the first step, we check our baseline premise, that is, whether the uncertainty about political decision-making is a channel through which elections affect lenders' monitoring demand and contingent pricing. We posit that less predictable elections exacerbate the uncertainty, thus increasing further the likelihood that a loan contract includes maintenance covenants and performance pricing provisions. Using the winning voting margin to gauge the predictability of an election, we find evidence consistent with our hypothesis.

Additionally, we investigate whether asymmetric information problems are an intervening variable that plays a role in the effect of political uncertainty on debt contracting outcomes. Since the quality of information and the ease of information acquisition can aid lenders' assessment of a borrower's economic state, these features are likely to alleviate lenders' concerns about the difficulty in evaluating a borrower

under the increased uncertainty. Consistent with this intuition, we show that the effect of gubernatorial election is weakened among the borrowing firms that have a lending relationship in the past five years (Prilmeier, 2017).

We perform additional checks to ensure that our findings are robust to alternative settings. We show that our conclusions remain when we control for concurrent events such as presidential elections or the quality of borrowing firms' financial reporting. Additionally, we repeat our main analyses using the economic policy uncertainty index developed by Baker et al. (2016) (*BBD index* henceforth) in lieu of our gubernatorial election variable. The results show that the BBD index appears to have overall positive effects on covenant intensity and performance-pricing provisions.

Our study contributes to the literature by extending two broad strands of research. First, a large volume of research concerned with private debt contract designs has shown that loan covenants mitigate the risks associated with information asymmetry and uncertainty. Recent studies in this line of literature find a strong information-driven motive in the lenders' use of covenants (see, e.g., Hollander and Verriest, 2016; Prilmeier, 2017). Our paper is the first to study how private lenders assess gubernatorial elections and employ different contractual arrangements in dealing with transitory uncertainty related to elections. In a study closely related to ours, Demerjian (2017) documents a positive link between uncertainty and debt covenants. However, our paper differs from his in that we exploit exogenous variation in uncertainty, rather than the borrower-level or industry-level measures of uncertainty.

Second, the literature investigating the impact of political uncertainty on cap-

ital markets and corporate outcomes has documented that during the high uncertainty periods, corporate investment activities shrink (Gulen and Ion, 2016; Jens, 2017), the number of IPOs declines (Çolak et al., 2017), and the risk premia increase (Pástor and Veronesi, 2012, 2013; Waisman et al., 2015). Our evidence complements this literature by documenting a strong impact of political uncertainty on private loans, an increasingly important source of capital for many firms. Given that loan spreads per se are largely unaffected, a casual intuition might suggest that gubernatorial elections have little to do with the costs of private debt capital. However, by focusing our analysis on covenants and state-contingent pricing in particular, we uncover implicit yet important effects on loan pricing that can go unnoticed.

The remainder of this paper proceeds as follows. Section 4.2 develops hypotheses. Section 4.3 describes our sample and the data. Section 4.4 reports and discusses our main empirical results, while Section 4.5 presents additional robustness checks. Section 4.6 concludes.

4.2 Related literature and the main predictions

4.2.1 Private debt contracting

It is a widely-held view in the literature that covenants in debt contracts play a role in protecting debtholders against equity's ex-post opportunistic activities, which would otherwise unduly transfer wealth from debtholders to shareholders. The traditional view put forth by, among others, Jensen and Meckling (1976) and Smith and Warner (1979), suggests that debt covenants reduce claim conflicts between debt and equity by enabling shareholders and debtholders to monitor managerial behaviour.

More recently, the literature on debt contracting emphasizes two main roles of financial covenants. First, covenants provide lenders with protection against the unforeseen states of the economy in the presence of agency and information problems (Berlin and Mester, 1992; Dessein, 2005). Garleanu and Zwiebel (2009) demonstrate that financial contracts in equilibrium can be characterized as a trade-off between the costs and benefits associated with early information acquisition as to the economic states of a borrower. They argue that early information acquisition becomes costly when such information is unnecessary in the first place, when lenders acquire wrong information, or when the scope for ex-post renegotiation is small. Garleanu and Zwiebel (2009) model thus predicts that lenders are more likely to impose stricter conditions when the information environment is opaque or the uncertainty about the future state is high.

Second, debt covenants give rise to a greater incentive for lenders to monitor their borrowers. Rajan and Winton (1995), whose model highlights the choice between a short-term loan without covenants and a long-term loan with covenants, show that covenants increase monitoring incentives. Moreover, by focusing on the optimal debt structure, Park (2000) demonstrates that monitoring incentives can be maximized when senior claims have the most restrictive covenants.

Prior empirical evidence generally supports the notion that debt covenants facilitate the allocation of control rights between debt and equity. Since it is prohibitively costly to write a complete contract, the state-contingent control allocation mitigates uncertainty and information asymmetry faced by lenders. The tripwire role played by debt covenants (Dichev and Skinner, 2002) therefore allows lenders to take over the control of a borrowing firm if the firm undergoes financial dis-

tress. Hollander and Verriest (2016) find a strong information-driven motive in the link between remote lenders and debt covenants. Prilmeier (2017) documents that borrower's relationship with lenders are positively correlated with covenant tightness because the relationship between borrowers and lenders reduces information asymmetry concerns for lenders. Overall, previous evidence suggests that covenants in debt contracts mitigate agency problem and alleviate exogenous uncertainty for lenders.

4.2.2 Political uncertainty

The literature examining the impact of political frictions on corporate outcomes is fast-growing. Changes in government policies or political leadership lead to uncertainty about the economic environment in which firms operate. Such uncertainty in economic policies, in turn, affects various corporate outcomes and decisions. Real options theory suggests that firms concerned with uncertainty find it optimal to delay their irreversible investment and wait until the uncertainty resolves (Bernanke, 1983; Dixit and Pindyck, 1994). Recent studies provide empirical support to this prediction in conjunction with economic policy uncertainty. For example, Julio and Yook (2012) show that in response to the increased political uncertainty due to national elections, firms cut down their investment expenditures. Similarly, Gulen and Ion (2016), using a news-based index of policy uncertainty (Baker et al., 2016), document a negative relationship between firm-level capital investment and economic policy uncertainty. Jens (2017) confirms this relationship using state-level gubernatorial elections as a shock to uncertainty.

Moreover, prior literature suggests that when political uncertainty rises, the

costs of corporate bonds (Waisman et al., 2015) and municipal bonds (Gao and Qi, 2019) increase. Çolak et al. (2017) document that IPO activities decrease during the state gubernatorial election periods. Using an international sample, Çolak et al. (2018) similarly show that political uncertainty raises financial intermediation costs, leading to slow adjustment speeds toward firms' optimal capital structure. In a similar vein, Pástor and Veronesi (2012, 2013) show that when political uncertainty increases, asset prices decline and risk premia increase. Collectively, prior evidence suggests that both equity- and debt-capital-market investors command higher risk premia to protect themselves against political uncertainty.

The question as to how private debt contract design – optimally – responds to political uncertainty, however, has received little attention in the literature. Our study highlights, among others, the role played by debt contracting mechanisms that ameliorate uncertainty. Do lenders require more maintenance covenants in election years, compared with off-election years, to ensure that timely monitoring can be implemented? Do lenders raise loan interest rates outright or do they – given the costs associated with ex-post renegotiation – make pricing contracted upon changes in a borrower's economic fundamental? Do the quality of information and the ease of information acquisition matter? We aim to contribute to the literature by addressing these questions.

4.2.3 Main predictions

Although not possessing fully independent sovereignty, each state of the U.S. does exercise certain functions of government. A governor, as a commander-in-chief, oversees and makes influences on a wide array of issues in her state, including state

budgets, legislative proposals, and the implementation of state laws. Peltzman (1987) argues that presidents and governors have similar executive powers in appointment and budget making. Besley and Case (1995) show that the gubernatorial election outcome affects economic policy choices because a newly elected governor can make changes to taxes, state and federal contracts, and wages. A gubernatorial election thus can bring about substantial uncertainty to the economic environment of a state in which firms are based and operate.

While the outcome of an election – and its economic consequences – is uncertain, the election cycle is known to everyone; that is, the increased uncertainty is anticipated by lenders or any market participants. It is thus highly conceivable that lenders ex-ante take this uncertainty into account. Theory suggests that lenders can mitigate the uncertainty about a borrowing firm by setting an ex-ante rule that enables the transfer of control rights from equity to debt contingent on the firm’s economic fundamentals (Aghion and Bolton, 1992). It is well-documented that financial covenants function as, inter alia, a tripwire and thus a threshold for the control allocation (Christensen and Nikolaev, 2012). We, therefore, hypothesize that as the lenders’ monitoring demand grows in election years, financial covenants are more likely included in loans extended to borrowers based in a state that is about to have a gubernatorial election.

Hypothesis 1: *The likelihood that a loan contract includes financial covenants is higher in gubernatorial election years than off-election years.*

Prior literature documents a positive effect on stock and bond risk premia of political uncertainty. On this ground, one could easily speculate that lenders would command higher interest rates for the syndicates loans closed in gubernatorial elec-

tion years. Charging higher rates across the board, however, can cause substantial inefficiency, because much of the uncertainty associated with a state’s gubernatorial election can resolve once a new governor takes the office. Given that the new information – as to the governor’s policy stance and the state’s economic outlook – becomes available shortly after the election concludes, a rational borrower would return to its lenders to lower the loan interest rate if the information received is favorable (Roberts, 2015; Roberts and Sufi, 2009). Were lenders and borrowers to deal with ex-post renegotiations after each election, the costs would be non-trivial. Presumably, the contracting parties would benefit from ex-ante agreeing on a pricing schedule that is conditioned on the evolution of a borrowing firm’s creditworthiness. As is well-documented in the literature, performance pricing is a common feature in debt contracts that enables a commitment to modify loan interest rates on the basis of changes in a borrowing firm’s financial performance, credit rating, or other similar measures (see, e.g., Asquith et al., 2005). A performance-pricing provision in a loan contract thus specifies a state-contingent pricing grid, a mapping between the loan spread schedule and a measure of the borrower creditworthiness. As Armstrong et al. (2010) argue, in the presence of contracting frictions that make incomplete contracts unavoidable, performance pricing provisions help to reduce costly debt renegotiations that would otherwise occur too often. In a similar vein, Demerjian (2017) notes that ex-ante negotiations are less costly than ex-post renegotiations triggered by a default event, such as covenant violations. We, therefore, predict that while loan spreads are not materially affected, performance pricing provisions become more prevalent in gubernatorial election years.

Hypothesis 2: *The likelihood that a loan includes performance pricing terms*

is higher in gubernatorial election years than off-election years.

4.3 Data and the empirical model

4.3.1 Data

To construct our sample, we begin by retrieving all syndicated loan contracts from the Thomson Reuters LPC’s Dealscan database between 1992 and 2014. Our loan sample contains the information on all dollar-denominated loans extended to the U.S. borrowers. Following Christensen and Nikolaev (2012), we focus our analysis on the loan-package level by aggregating the facility information at the package level, because in most cases, financial covenants apply to all loan facilities in a package.² Excluding deals without information on covenants, we are left with an initial sample of 15 thousand observations. We then merge our loan sample with Compustat and CRSP files to obtain borrower characteristics.³ Excluding financial firms (SIC from 6000 to 6999), we obtain 8,413 observations for our baseline sample. We extract the historical information on firms’ headquarters address from Bill McDonald’s website because Compustat only provides current headquarter locations.⁴ The state-level data, such as real GDP, GDP per capita, are collected from the Bureau of Economic Analysis (BEA) Regional Economic Accounts database. Unemployment rates are extracted from the Bureau of Labor Statistics.

²As document Berlin et al. (2019), a split-control-right arrangement has become popular in the later part of our sample period (i.e., 2010–2014). Under this arrangement, a loan package consists of revolving credits with maintenance covenants and term loans without covenants. The term-loan tranche participants—usually dispersed—therefore avoid getting involved in costly renegotiation process, although still benefiting from monitoring activities taken by revolving creditors. Our baseline sample includes 2,828 loans with multiple facilities (34% of the sample) and our results are robust to filtering these loans out in our tests.

³We use the Dealscan-Compustat link table from Chava and Roberts (2008). The version we used contains the links updated through the end of 2017.

⁴The EDGAR 10-K header information compiled by Bill McDonald and Tim Loughran is available from <https://sraf.nd.edu/data/augmented-10-x-header-data/>. As the EDGAR database begins from 1994, we back-ward-interpolate missing values for 1992 and 1993.

We collect gubernatorial election data from Congressional Quarterly (CQ) Electronic Library. The gubernatorial election is an indicator variable that equals one if the loan is issued to a firm headquartered in a state in which a gubernatorial election was held in that year, and zero otherwise. During our sample period from 1992 to 2014, there are 293 gubernatorial elections and only six presidential elections.

Like Hollander and Verriest (2016), we use the number of financial covenants (*Covenant intensity*) in a loan package to measure lenders' monitoring demand. Following prior literature (e.g., Nini et al., 2009), we classify various covenants into financial covenants and nonfinancial ones. Financial covenants are further divided into one of the following six types: ratios of debt to balance sheet items, coverage ratios, ratios of debt to cash flow items, liquidity ratios, net worth requirements, and EBITDA requirements (Nini et al., 2009). We then count the number of these six types of financial covenants to construct *Finance covenant intensity*. Table 4.1 reports the frequency of each group, as well as individual covenants, in our sample. The most commonly-used types of financial covenants are coverage, debt to cash flow, and net worth categories, which, respectively, are included in 83.5%, 66.3%, and 33.8% of loans in our sample. Overall the statistics in Table 4.1 are in line with those reported in prior literature.⁵

[Insert Table 4.1 here]

We use performance-pricing provisions to gauge the lenders' demand for state-contingent loan pricing. We use a dummy indicator for such provisions in our tests (Demerjian, 2017).

⁵Prilmeier (2017) for instance reports 79%, 60%, and 43%, respectively, for coverage, debt to cash flow, and net worth categories.

4.3.2 Empirical model

To investigate the impact of gubernatorial elections on loan contracting outcomes, we estimate the following equation:

$$Y_{i,j,s,t} = \beta GE_{s,t} + \gamma W_{i,j,s,t} + \delta X_{j,s,t} + \phi Z_{s,t} + a_s + b_k + \epsilon_{i,j,s,t} \quad (4.1)$$

where: $Y_{i,j,s,t}$ is a measure of either financial covenant intensity or performance pricing imposed on a loan i issued for a firm j headquartered in state s in year t and $GE_{s,t}$ is a dummy indicator that takes one if a gubernatorial election is held in the state s in year t . By including state fixed effects a_s , we estimate the effect of elections after differencing out time-invariant heterogeneities in economic and political conditions across states. Similarly, industry fixed effects b_s ensure that our results are not driven by industry-specific factors (e.g., investment opportunities).

We also include vectors of covariates $W_{i,j,s,t}$, $X_{j,s,t}$, and $Z_{s,t}$ to account for loan characteristics, firm attributes, and time-varying economic conditions of states, respectively.⁶ Following prior literature, we include in $W_{i,j,s,t}$ deal size, loan maturity, all-in-drawn loan spreads, the secured-loan dummy, the revolving-loan dummy, and the lending-relationship dummy. The vector $X_{j,s,t}$ includes, as a lagged form, firm size, market to book, leverage ratio, asset tangibility, Altman's (1969) Z-score, cash to assets, earnings volatility,⁷ sales growth rate, research and development (R&D) expenses to assets, the negative-earning dummy, return on assets (ROA), and the

⁶Our regression model, like that of Colak et al. (2017) and Boone et al. (2017), does not include year fixed effects because aggregate economic conditions are controlled for. In baseline results, however, we find that our results are robust to including year fixed effects.

⁷We measure earnings volatility based on Hasan et al., 2017, which is based on the standard deviation of quarterly earnings in the last three years. Our results are also robust when we scale earnings to total assets

credit-rating dummy. We winsorize the variables at 1% in both tails. Appendix 4.A provides the variable definitions in details.⁸

[Insert Table 4.2 here]

Table 4.2 reports the summary statistics for the variables used in our baseline regressions. These statistics are in line with those reported in prior literature. The sample mean of the number of financial covenants is 2.3, very similar to the means reported by Demerjian (2017) and Prilmeier (2017). Approximately 69% of the loans in our sample have at least one performance-pricing provision, comparable to 55% reported by Ball et al. (2008). Statistics for other loan-level variables in our sample are also similar to those reported by prior studies (see, e.g., Hasan et al., 2017).

[Insert Table 4.3 here]

Further, we also compare the means of covenants, performance pricing and a set of control variables for election years and off-election years. Table 4.3 presents the results of this analysis. The univariate tests show that, during gubernatorial elections, financial covenants and performance pricing terms are higher than off-election years. Notably, the analysis also shows that loan spreads are indifferent between election and non-election years. Also, we find that during election years, maturity of loans is lower than during off-election years. Therefore, this analysis implies that banks will not apply higher rates altogether during election years, because much of the uncertainty tied to election outcomes resolves after the elections.

⁸Correlation matrix table is reported in Appendix 4.B

4.4 Empirical results

4.4.1 Baseline regression results

We begin by examining how gubernatorial elections affect financial covenants and performance pricing provisions. We estimate OLS-type model – with state and industry fixed effects – to examine the financial covenant intensity. The logit model is estimated when we investigate the likelihood that a contract includes performance pricing provisions. Following Bertrand et al. (2004), we use standard errors accounted for within-state clustering.

Table 4.4 reports the baseline results. Across all models, the coefficient on the gubernatorial election dummy is positive and statistically significant. Consistent with our hypothesis, during gubernatorial election years, lenders are more likely to require maintenance covenants and performance-pricing provisions in loan contracts. The effect we document is also economically sizeable. For example, the number of financial covenants increases by 0.058 (the coefficient on *Gubernatorial election*), which is equivalent to an increase by 3% relative to the sample median (2.000). It is worth noting that our estimate is likely a lower bound, because some firms, with stricter covenant requirements imposed, might have decided not to enter into their loan agreements. These unexecuted contracts are not observable to us. Overall, our evidence suggests that, in response to the increased uncertainty associated with potential changes in political leadership and subsequent economic policies, lenders increase their monitoring intensity. Moreover, we document an important pricing implication of gubernatorial elections that may go unnoticed. As discussed above, given the transitory nature of election uncertainty, along with the prevalence of

renegotiations in private loan contracting, lenders' action of increasing loan interest rates outright across the board is likely a costly proposition for both sides of contracting parties. Consistent with this intuition, we find that loan spreads remain largely unaffected in gubernatorial election years.⁹ The marginal effects reported in panel B of Table 4.4, however, show that gubernatorial election is associated with a 4.6% increase in the likelihood that a loan contract includes performance pricing provisions. A pricing gird in a loan contract allows lenders to adjust loan interest rates conditional on ex post economic states of borrowers but the realized changes in these rates are not observable. Although this property renders the direct effect on firms' cost of capital unmeasurable, the economic magnitude of the implicit pricing effect, inferred from our evidence on performance pricing, appears to be non-trivial, enough to make firms to reconsider their capital raising decisions. Overall our findings suggest that gubernatorial elections have important implications for syndicated loan contracting and the cost of private debt capital. The associated uncertainty, albeit arguably transitory, significantly impacts lenders' stance on monitoring of borrowers and state-contingent pricing.

Finally, the control variables show that large borrowers with S&P rating on average have fewer financial covenants (Demerjian, 2017). In particular, the coefficient on firm size ($\ln(\text{assets})$) is negative statistically, while the coefficient on *Unrated* is positive and statistically significant with *Financial covenant intensity*. Further, the coefficient on *R&D* is negative and statistically significant, consistent with the finding of Skinner (1993) and Christensen and Nikolaev (2012), suggesting that high-growth firms face fewer covenants. The coefficient on *ROA* is positive and statistically significant, suggesting that firms with better performance have

⁹The results are reported in Appendix 4.C

higher financial covenants (Christensen and Nikolaev, 2012). We also find that the covenant intensity exhibits a positive association with loan maturity, suggesting that covenants make debt maturity conditional on performance and thus are likely to be more valuable in contracts with longer maturity (Christensen and Nikolaev, 2012). Consistent with the finding of Ivashina (2009), we find a positive association between covenant intensity and loan spread, suggesting that lenders use both spreads and financial covenants to compensate for higher credit risk (Hollander and Verriest, 2016). Moreover, we find a positive and statistically significant association between relationship lending and financial covenants, consistent with the finding of Prilmeier (2017) which suggests that borrowers are more likely to lose bargain power when they have long-term relationship with banks. Considering macroeconomic factor, we find that borrowers in states with high GDP per capita have lower financial covenant intensity, suggesting that certain about economic factors¹⁰ make banks set lower covenants in loan contracts (Demerjian, 2017).¹¹

[Insert Table 4.4 here]

4.4.2 Capital-based and performance-based covenants and pricing grids

Our baseline results in the previous subsection implicitly assume that all financial covenants and performance-pricing provisions have the same impact. In this section, we perform two sets of analyses to investigate the implications of setting different types of covenants and performance pricing provisions in a loan contract

¹⁰We do not find a positive relationship between unemployment rate and covenant intensity. However, we use the US's unemployment rate instead of states' as in prior study (Boone et al., 2018). Thus, the negative sign could be driven by other positive factors which could compensate for the high unemployment rate.

¹¹We find the opposite directions for many control variable and performance pricing. The possible explanation for these results is that performance pricing is considered as a contingent complied with loan spreads and therefore this mechanism is used to compensate for an increase in loan spread (Asquith et al., 2005; Demerjian, 2017).

during gubernatorial elections.

Capital-based and performance-based covenants

First, prior incomplete contract theory predicts that an optimal debt contract can be characterized by the trade-off between ex-ante interest alignment and ex-post control rights (Aghion and Bolton, 1992). Consistent with this prediction, Christensen and Nikolaev (2012) show that financial covenants mitigate the conflicts of interest between lenders and borrowers either by reducing agency problem via capital covenants or by facilitating the transfer of control rights to lenders via performance covenants when the value of their claim is at risk. They argue that C-covenants help align the interests of shareholders with debtholders because the covenants of this type require shareholders to maintain enough skin in the game. C-covenants thus encourage shareholders to monitor management and reduce incentives to expropriate the value of deb. In contrast, P-covenants primarily serve as a tripwire facilitating ex-post monitoring and a timely transfer of control rights to debtholders when necessary. In other words, C-covenants and P-covenants are concerned with different types of risks faced by lenders.

Accordingly, we expect that during the gubernatorial election period, lenders are likely to rely on both types of covenants to protect themselves against uncertainty via two complementary channels. First, banks could design more restrictive terms based on capital-covenants to monitor borrowers ex-ante and reduce the conflict of interests between debtholders and shareholders. In other words, lenders would set more C-covenants in a loan contract. Second, banks could contingent control transfers by reducing the contractibility of accounting based on performance-covenants.

Therefore, we follow Christensen and Nikolaev (2012) to classify financial covenants into two groups: C-covenants and P-covenants.¹² We then count the number of each type of covenants to construct our variables for C-covenants and P-covenants. Summary statistics of different types of covenants are also reported in Table 4.2. On average, there are 1.581 P-covenants and 0.728 C-covenants in our sample.

Table 4.5 reports our results. The estimations on *Gubernatorial election* are positive and significant in columns 1 and 2. More specifically, the results also suggest that firms headquartered in the states holding gubernatorial elections have significantly larger numbers of P-covenants and C-covenants, compared with no election states, implying that lenders care about both ex-ante and ex-post monitoring roles of covenants during the high political uncertainty periods. The result for *CovMix*, defined as P-covenant divided by the sum of P-covenant and C-covenant, confirms that the effect of election uncertainty is similar across the two types (Column 3).

[Insert Table 4.5 here]

Different types of pricing grids in performance pricing provisions

In this subsection, we investigate the use of performance-pricing terms in lending agreements to shed further light on how lenders set a state-contingent pricing schedule, conditioned on the evolution of a borrower's creditworthiness.

As Asquith et al. (2005) demonstrate, lenders are more likely to set pricing grids linked to accounting metrics or credit ratings in an attempt to reduce adverse selection when information asymmetry is high. Further, Ball et al. (2008) find that

¹²Specifically, the following covenants are classified as C-covenants: quick ratio, current ratio, debt to equity, loan to value, debt to tangible net worth, leverage ratio, senior leverage ratio, and the net worth requirement. Included in P-covenants are: cash interest coverage ratio, debt service coverage ratio, level of EBITDA, fixed charge coverage ratio, interest coverage ratio, debt to EBITDA, and senior debt to EBIT.

accounting metrics are more commonly employed by lenders to design performance pricing provisions than are credit ratings. They argue that credit rating-based pricing grids would be used only when accounting information is a weak predictor of credit risk. In their analysis of different types of pricing grids contracted upon accounting information, Christensen and Nikolaev (2012) similarly argue that capital-based pricing grids (C-grids) have an interest-alignment effect similar to that of C-covenants. Therefore, C-grids included in a contract are indicative of lenders' concerns about ex-ante monitoring. On the other hand, if gubernatorial elections create uncertainty about the future economic state of a borrowing firm, lenders are more likely to rely on profitability-based grids (P-grids). We, therefore, examine the use of different types of pricing grids.

We estimate the logit model to predict the likelihood that a contract stipulates a set of pre-negotiated state-contingent pricing schedules.

[Insert Table 4.6 here]

Table 4.6 reports our results. We find that the coefficient on the *Gubernatorial election* is positive and significant for P-grid and Rating-grid. However, we do not find a significant effect for C-grid. These results suggest that lenders are more likely to set pricing-grids based on performance or profitability indicators and credit ratings during the gubernatorial election period to compensate for the aggravation of credit risk. These findings are generally in line with Ball et al. (2008) and Christensen and Nikolaev (2012) in that the substitution effect between performance indicators and credit ratings in performance pricing provisions, but not between capital-based indicators and credit ratings. Overall, lenders take into account both ex-ante and ex-post monitoring in response to greater uncertainty during

gubernatorial election years.

4.4.3 Inspecting economic mechanisms

Our main findings suggest that gubernatorial elections increase transitory uncertainty there affecting lenders' monitoring intensity and state-contingent pricing. In this subsection, we check our baseline premise, i.e., whether political uncertainty is the key economic mechanism underlying the relationship we find. We then further examine differences in the lenders' responses across firm attributes that are presumed to be an intervening variable for the impact of uncertainty.

The extent to which elections are contested

We first analyse how the degree of election uncertainty affects our main results. The first analysis is based on the election margin. Prior literature of Julio and Yook (2012) and Boutchkova et al. (2012) also use the winning margin as a measure for election-related political uncertainty. Additionally, Çolak et al. (2017) state that although the winning margin is an ex-post measure of election closeness, this measure reflects the ex-ante uncertainty level of the election outcome. Based on this argument, we expect a high value of election margin—equivalently a narrow winning margin—indicates a greater uncertainty. Therefore, we generate a dummy variable *Election margin* that takes one if election margin value is larger than the median, and zero otherwise. We also set *Election margin* to zero when Gubernatorial election is zero, which indicates the lower bound for political uncertainty in the leading up election period. The average election margin in our sample is 84.53% for all gubernatorial election observations. And, approximately 12.24% observations of our sample have high election-related uncertainty due to the high election margin.

[Insert Table 4.7 here]

Using *Election margin* in place of the Gubernatorial election variable, we then re-estimate our baseline model. Table 4.7 reports our results. For all two main dependent variables in columns 1–2, the coefficient on *Election margin* is positive and statistically significant. We find that during the gubernatorial election period with close election margin, the number of financial covenants increases by 0.074 (the coefficient on *Gubernatorial election*), which is equivalent to an increase by 3.2% relative to the sample mean (2.309). More importantly, the likelihood that lenders set performance pricing provisions increases by 6.0% due to election closeness. These results suggest that close election leading to high election-related uncertainty encourages lenders to impose more restrictive covenants and performance pricing provisions on borrowers against uncertainty. Overall, these results suggest that political uncertainty associated with gubernatorial elections does play a crucial role in private debt contracting space.

Adverse selection problems

Next, we examine how adverse selection problems affect the relationship between political uncertainty and debt contracts. Garleanu and Zwiebel (2009) suggest that lenders could set more restrictive covenants on borrowers to provide protection against the ex-ante information asymmetry. Thus, if adverse selection problems increase lenders' concerns about borrowers, we expect to see a stronger effect in the subsamples of borrowers with greater information problems.

We classify firms into high adverse selection problems and low adverse selection problems based on *Relationship lending*. Demiroglu and James (2010) find a posi-

tive and significant relationship between tightness of financial covenants. Further, Prilmeier (2017) examines the effect of relationship lending on covenant choices and finds that the duration of a lending relationship affects covenant terms, especially for opaque borrowers. Therefore, if relationship lending helps to overcome the impact of election-related political uncertainty on financial covenants and performance-pricing provisions, we expect to see a weakened effect in the subsamples of borrowers with a long-term relationship with lenders. We divide our sample based on whether borrowers have a prior lending relationship with the lead banks in the past five years (Giannetti and Yafeh, 2012). We focus on the lead arranger(s) in this analysis because they have main roles in monitoring and screening the loan contract terms (Ivashina, 2009). We also follow prior study on debt contracts (e.g. Gopalan et al., 2011) to identify lead arrangers and generate *Relationship lending* indicator variable which takes a value of one if a borrower has a lending relationship with lead banks in the last five years.

[Insert Table 4.8 here]

Table 4.8 presents our results with a set of control variables but excluding *Relationship lending* variable. We find that the coefficients of *Gubernatorial election* are more positive and significant for without relationship lending subsample, whereas we do not find significant results for the subsample with relationship lending. These findings are consistent with our expectation that information asymmetry drives banks to impose more restrictive loan contracts during gubernatorial election years.

Taken together, our results suggest that both the difficulty in information acquisition and the quality of information are an important economic mechanism

underlying the link between political uncertainty and lenders' demand for covenants and state-contingent pricing.

4.5 Robustness tests

In this section, we ensure that our main findings are robust to various considerations.

4.5.1 Alternative measures of political uncertainty

First, we replace our main dependent variable for political uncertainty with economic policy uncertainty (BBD) index following Baker et al. (2016). Prior studies on policy uncertainty use this proxy as main measure (Gulen and Ion, 2016; Bonaime et al., 2018). In our tests, we use three-month mean (Columns 1–2) and twelve-month mean (Columns 3–4) values of the BBD index.

[Insert Table 4.9, Panels A here]

Panel A of Table 4.9 shows our results based on different measures of uncertainty based on BBD index. The results show that the BBD index appears to have overall positive effects on covenant intensity and performance-pricing provisions. Therefore, the result on the relationship between economic policy uncertainty and the intensity of financial covenants is robust.¹³

¹³Although we do not find the significant relationship between the indicator for performance-pricing provisions and BBD index, one of the plausible explanations for this result is that BBD index reflects policy uncertainty in general, which may or may not arise in an election or may not change even after election outcomes (Nagar et al., 2019). Furthermore, gubernatorial elections naturally show the expected and transitory shock, as opposed to unexpected and perennial shock of economic policy uncertainty index.

4.5.2 Controlling for a concurrent event

Next, we explore whether our results are influenced by other confounding election events, particularly presidential elections which accounts for 25% observations of our sample. We first generate a dummy variable that takes the value of one if there is a presidential election in a certain year and zero otherwise. To control for this confounding election, we control for the presence of presidential elections. Columns 1 - 2 in panel B of Table 4.9 show the findings. We find that after control for the presidential election dummy variable, the coefficients on *Gubernatorial election* are still positive and statistically significant. Furthermore, we do not find significant coefficients on the Presidential election for covenant intensity and the number of performance-pricing provisions.

Alternatively, we exclude from our sample the observations with presidential elections. Models 3 - 4 in panel B of Table 4.9 present the results. We document that the coefficient on *Gubernatorial election* is still positive and significant after dropping the governor election concurrent with presidential elections.

[Insert Table 4.9, Panel B here]

4.5.3 Controlling for other accounting decisions

As in Graham et al. (2008), banks set tighter loan contracts to reduce risk and information problems arising from financial reporting quality. Therefore, in this sub-section, we show the results are robust to the inclusion of additional accounting decision measure, which may cause adverse selection problems. In columns 1 - 2 of panel C - Table 9, we add earnings management measures to control for financial reporting quality. The earning management measure is based on the Mod-

ified Jones model (Dechow et al., 1995). Columns 3 - 4 of panel C show the results with additional control for accounting conservatism. We use Khan and Watts (2009) model to calculate for our conditional accounting conservatism. We find that the coefficients on the *Gubernatorial election* are statistically significant and positive. These results are consistent with our main findings, implying that our results are not driven by the earnings management or accounting conservatism.

[Insert Table 4.9, Panel C here]

4.6 Conclusion

By exploiting the U.S. gubernatorial elections as an exogenous shock to political uncertainty, we have examined how the uncertainty affects lenders' monitoring demand and loan pricing decision in the private syndicated loan markets. We document a substantial impact of political uncertainty on the covenant requirements and the state-contingent pricing grids. Our results show a sizeable increase in the likelihood that a loan contract includes financial covenants and performance-pricing provisions in gubernatorial election years, compared with off-election years. The more fiercely fought an election is, the stronger are these effects, indicating that political uncertainty is indeed the main channel through which elections affect the loan contracting outcomes. The ease of information acquisition and the quality of information also play an important economic mechanism in this relationship. Additional analysis suggests that lenders are concerned about inter alia two factors: the claim conflict between debt and equity and the lack of information about future performance in setting initial contracts. Overall, our evidence suggests that political uncertainty associated with gubernatorial elections has a significant impact on

private loans, an increasingly important source of capital for many firms.

4.7 Tables of Chapter 4

Table 4.1 – Frequency of financial and nonfinancial covenant types

This table reports the frequency of inclusion of different types in our sample for the period 1992 to 2014

	Fraction (%)
<i>Financial covenants</i>	
Debt to equity covenant	0.53
Debt to tangible net worth covenant	6.63
Leverage ratio covenant	21.35
Loan to value covenant	0.06
Senior leverage covenant	0.13
<i>Any debt to balance sheet covenant</i>	28.70
Cash interest coverage covenant	1.11
Debt service coverage covenant	5.46
Fixed charge coverage covenant	38.05
Interest coverage covenant	38.92
<i>Any coverage covenant</i>	83.53
Debt to EBITDA covenant	57.09
Senior debt to EBITDA covenant	9.91
<i>Any debt to cash flow covenant</i>	66.28
Current ratio covenant	8.55
Quick ratio covenant	1.75
<i>Any liquidity covenant</i>	10.30
Net worth covenant	17.84
Tangible net worth covenant	19.3
<i>Any net worth covenant</i>	33.77
EBITDA covenant	8.30
<i>Non-financial covenant</i>	
Asset sales sweep	41.80
Equity issuance sweep	34.26
Debt issuance sweep	37.31
<i>Any sweep provision</i>	43.52
Capex Covenant	21.48
Dividend Covenant	72.98
Observations	8,413

Table 4.2 – Descriptive statistics

This table provides the summary statistics for variables in the baseline model. The sample contains 8,413 loan package-year observations during the period 1990-2014. Variables are defined in the Appendix. All financial ratios are winsorised at the 1% and 99% level. Loan characteristics and state-level variables are computed as of year t . Loans with many facilities are aggregated into package level. Firm-level characteristics are computed as of year $t-1$.

	N	Mean	Std dev	P1	Median	P99
Main dependent variables						
Covenant Intensity	8413	2.309	1.026	1.000	2.000	5.000
P-covenants	8413	1.581	0.963	0.000	2.000	4.000
C-covenants	8413	0.728	0.792	0.000	1.000	3.000
Performance Pricing	8413	0.691	0.462	0.000	1.000	1.000
P-grid	8413	0.419	0.493	0.000	0.000	1.000
C-grid	8413	0.042	0.202	0.000	0.000	1.000
Rating grid	8413	0.251	0.434	0.000	0.000	1.000
Firm-level variables						
Ln(assets)	8413	6.841	1.698	3.159	6.793	10.764
MTB	8413	2.495	3.258	-8.487	1.930	19.995
Profitability	8413	0.025	0.101	-0.446	0.039	0.224
Leverage	8413	0.295	0.188	0.000	0.278	0.933
Tangibility	8413	0.340	0.243	0.023	0.274	0.909
Z-score	8413	1.834	1.261	-1.765	1.83	5.268
Cash holding	8413	0.074	0.093	0.000	0.037	0.429
Sales growth	8413	0.077	0.204	-0.683	0.077	0.619
Earnings volatility	8413	0.045	0.106	0.000	0.01	0.706
Loss dummy	8413	0.214	0.410	0.000	0.000	1.000
R&D	8413	0.014	0.034	0.000	0.000	0.168
ROA	8413	0.085	0.08	-0.169	0.083	0.305
Unrated	8413	0.488	0.500	0.000	0.000	1.000
State-level variables						
Real GDP growth	8413	0.028	0.026	-0.042	0.027	0.085
Ln (GDP per capita)	8413	10.584	0.241	10.073	10.584	11.103
Unemployment rate	8413	5.760	1.570	3.967	5.408	9.608
Loan-level variables						
Secured	8413	0.566	0.496	0.000	1.000	1.000
Revolver	8413	0.870	0.337	0.000	1.000	1.000
Relationship lending	8413	0.489	0.500	0.000	0.000	1.000
Relative deal size	8413	0.334	0.330	0.017	0.239	1.812
Deal maturity	8413	46.123	19.349	6.000	48.000	86.112
Ln (Spread)	8413	4.915	0.760	2.996	5.011	6.397
Observations	8413					

Table 4.3 – Univariate test

This table provides comparisons of means of covenants, performance pricing, loan characteristics and other control variables for election years and off-election years. The sample contains 8,413 loan package-year observations during the period 1990-2014. Variables are defined in Appendix 4.A. All financial ratios are winsorized at the 1% and 99% level. Loan characteristics and state-level variables are computed as of year t. Loans with many facilities are aggregated into package level. Firm-level characteristics are computed as of year t-1.

	N	Non-election	Election	Difference	
				Coefficient	t-stat
Financial Covenant Intensity	8413	2.298	2.345	0.047*	-1.790
P-covenants	8413	1.570	1.617	0.047*	-1.896
C-covenants	8413	0.728	0.728	0.000	-0.015
Performance Pricing	8413	0.683	0.718	0.035***	-2.991
P-grid	8413	0.410	0.448	0.037***	-2.956
C-grid	8413	0.043	0.041	-0.002	0.390
Rating grid	8413	0.251	0.253	0.002	-0.205
Ln(assets)	8413	6.863	6.770	-0.094**	2.148
MTB	8413	2.487	2.519	0.032	-0.38
Leverage	8413	0.295	0.294	-0.001	0.259
Tangibility	8413	0.342	0.336	-0.006	0.958
Z-score	8413	1.846	1.798	-0.048	1.475
Cash holding	8413	0.072	0.078	0.006**	-2.308
Sales growth	8413	0.087	0.045	-0.042***	8.094
Earnings volatility	8413	0.046	0.043	-0.004	1.291
Loss dummy	8413	0.210	0.227	0.017	-1.609
R&D	8413	0.014	0.016	0.001*	-1.714
ROA	8413	0.086	0.080	-0.005***	2.66
Unrated	8413	0.483	0.504	0.021*	-1.666
Real GDP growth	8413	0.029	0.023	-0.006***	9.688
Ln (GDP per capita)	8413	10.582	10.59	0.008	-1.342
Unemployment rate	8413	5.782	5.691	-0.091**	2.255
Secured	8413	0.559	0.589	0.030**	-2.382
Revolver	8413	0.871	0.866	-0.004	0.51
Relationship lending	8413	0.501	0.448	-0.053***	4.129
Relative deal size	8413	0.332	0.340	0.008	-0.984
Deal maturity	8413	46.43	45.129	-1.301***	2.618
Ln (Spread)	8413	4.907	4.939	0.032	-1.629
Observations	8413				

Table 4.4 – Baseline regressions: Effect of political uncertainty on debt contracts

This table presents the results from the OLS regressions and the logistic regression of covenant intensity, performance pricing on gubernatorial election (*Gubernatorial election*). *Covenant intensity* is the number of financial covenants attached in a loan package. *Performance pricing* is an indicator variable that takes value of one if a loan package contains performance-pricing provisions. Variables are defined in Appendix 4.A. Standard errors are clustered at the state level. Standard errors are reported in parentheses. *, **, *** denotes the coefficients are significantly different from zero at the 1%, 5% and 10% levels, respectively.

a – Panel A: Baseline regressions

	(1) Financial Covenant Intensity	(2) Performance Pricing	(3) Financial Covenant Intensity	(4) Performance Pricing
Gubernatorial Election	0.058*** (0.017)	0.232*** (0.056)	0.047** (0.023)	0.204** (0.094)
Ln(assets)	-0.073*** (0.017)	0.413*** (0.035)	-0.069*** (0.017)	0.429*** (0.039)
MTB	-0.005 (0.003)	0.005 (0.010)	-0.005 (0.003)	0.002 (0.010)
ROA	0.779** (0.302)	2.262*** (0.466)	0.715** (0.300)	2.119*** (0.468)
Leverage	0.064 (0.089)	-0.543*** (0.190)	0.042 (0.085)	-0.454** (0.200)
Tangibility	-0.096 (0.112)	-0.870*** (0.295)	-0.119 (0.110)	-0.969*** (0.307)
Z-score	-0.007 (0.012)	0.005 (0.049)	-0.007 (0.011)	0.007 (0.050)
Cash holding	-0.154 (0.171)	-0.940*** (0.362)	-0.144 (0.182)	-0.965*** (0.364)
Sales growth	0.112* (0.064)	-0.238** (0.103)	0.169** (0.066)	-0.076 (0.105)
Earnings volatility	-0.497*** (0.120)	-1.650*** (0.447)	-0.490*** (0.116)	-1.747*** (0.425)
Loss dummy	-0.228*** (0.032)	-0.394*** (0.092)	-0.229*** (0.032)	-0.405*** (0.096)
R&D	-1.551*** (0.515)	-2.555*** (0.933)	-1.455*** (0.497)	-2.110** (0.938)
Unrated	0.170*** (0.031)	-0.029 (0.097)	0.178*** (0.030)	0.006 (0.096)
Revolver	0.099*** (0.035)	0.662*** (0.094)	0.102*** (0.035)	0.654*** (0.100)
Relationship lending	0.075*** (0.020)	-0.177** (0.076)	0.081*** (0.021)	-0.112 (0.078)
Relative deal size	-0.019 (0.057)	0.674*** (0.210)	0.001 (0.053)	0.731*** (0.219)
Deal maturity	0.003*** (0.001)	0.016*** (0.002)	0.004*** (0.001)	0.019*** (0.002)
Ln(Spread)	0.325*** (0.023)	-0.465*** (0.059)	0.314*** (0.025)	-0.530*** (0.062)
Real GDP growth	0.148 (0.518)	-4.535** (1.889)	-0.823 (0.541)	-0.478 (1.814)
Ln(GDP per capita)	-1.483*** (0.081)	-1.510*** (0.254)	0.396 (0.375)	-0.530 (0.904)
Unemployment rate	-0.054*** (0.011)	-0.224*** (0.026)	-0.081** (0.031)	0.009 (0.115)
Constant	16.913*** (0.849)	18.102*** (2.936)	-2.805 (4.005)	5.927 (9.835)
Observations	8413	8413	8413	8413
Industry FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Year	No	No	Yes	Yes
Method	OLS	Logit	OLS	Logit
Adjusted R^2	0.304		0.315	
Pseudo R^2		0.184		0.201

b – Panel B: Average marginal effects at mean

	(1) Financial Covenant Intensity	(2) Performance Pricing	(3) Financial Covenant Intensity	(4) Performance Pricing
Gubernatorial Election		0.046*** (0.011)		0.041** (0.019)

Table 4.5 – Effect of political uncertainty on types of covenants

This table presents the results from the OLS regressions of covenant package on gubernatorial election (*Gubernatorial election*). Covenant intensity is the number of financial covenants attached in a loan package. P-covenant is the number of performance-based covenants attached in a loan package. C-covenant is the number of capital-based covenants attached in a loan package. Variables are defined in Appendix 4.A. Regressions include state and industry fixed effects. Standard errors are clustered at the state level. Standard errors are reported in parentheses. *, **, *** denotes the coefficients are significantly different from zero at the 1%, 5% and 10% levels, respectively.

	(1) P-covenant	(2) C-covenant	(3) Covmix
Gubernatorial Election	0.032** (0.016)	0.026** (0.013)	-0.002 (0.005)
Ln(assets)	0.016 (0.017)	-0.089*** (0.008)	0.014*** (0.005)
MTB	0.005 (0.004)	-0.010*** (0.003)	0.004*** (0.001)
ROA	1.438*** (0.333)	-0.660*** (0.148)	0.0503*** (0.098)
Leverage	0.301*** (0.100)	-0.236*** (0.060)	0.117*** (0.032)
Tangibility	-0.448*** (0.083)	0.352*** (0.056)	-0.158*** (0.024)
Z-score	-0.046** (0.018)	0.039*** (0.013)	-0.002*** (0.005)
Cash holding	-0.117 (0.166)	-0.036 (0.096)	-0.005 (0.066)
Sales growth	0.048 (0.048)	0.065 (0.045)	-0.017 (0.015)
Earnings volatility	-0.707*** (0.151)	0.210* (0.118)	-0.134* (0.077)
Loss dummy	-0.042 (0.028)	-0.186*** (0.022)	0.052*** (0.012)
R&D	-2.536*** (0.394)	0.984** (0.438)	-0.672* (0.137)
Unrated	0.100*** (0.033)	0.069*** (0.023)	0.004 (0.012)
Revolver	0.044 (0.043)	0.056 (0.034)	-0.010 (0.017)
Relationship lending	0.042** (0.020)	0.033* (0.018)	0.005 (0.006)
Secured	0.089*** (0.026)	-0.092*** (0.033)	0.046*** (0.010)
Relative deal size	0.201*** (0.037)	-0.219*** (0.039)	0.056*** (0.006)
Deal maturity	0.008*** (0.001)	-0.005*** (0.001)	0.003*** (0.000)
Ln(Spread)	0.360*** (0.023)	-0.034* (0.019)	0.078*** (0.011)
Real GDP growth	-1.274** (0.519)	1.422*** (0.377)	-0.502*** (0.150)
Ln(GDP per capita)	-0.010 (0.068)	-1.472*** (0.071)	0.425*** (0.033)
Unemployment rate	-0.068*** (0.010)	0.014*** (0.005)	-0.007*** (0.003)
Constant	-0.287 (0.681)	17.194*** (0.729)	-4.401*** (0.322)
Observations	8413	8413	8413
Adjusted R^2	0.354	0.347	0.375
Industry FE	Yes	Yes	Yes
State FE	Yes	Yes	Yes

Table 4.6 – Effect of political uncertainty on types of pricing grids

This table presents the results from the logistic regressions of performance-pricing provisions on gubernatorial election (*Gubernatorial election*). *P-grid* is an indicator variable that takes value of one if a loan package has at least one performance-based (or profitability) grid attached in a loan package. *C-grid* is an indicator value that takes value of one if a loan package has at least one capital-based grid in a loan package. *Rating-grid* is an indicator variable that takes value of one if there is at least one credit-rating grid in a loan package. Variables are defined in Appendix 4.A. Regressions include state and industry fixed effects. Standard errors are clustered at the state level. Standard errors are reported in parentheses. *, **, *** denotes the coefficients are significantly different from zero at the 1%, 5% and 10% levels, respectively.

	(1) P-grid	(2) C-grid	(3) Rating grid
Gubernatorial Election	0.186*** (0.057)	0.082 (0.142)	0.204** (0.088)
Ln(assets)	0.031 (0.058)	0.235** (0.110)	0.893*** (0.068)
MTB	-0.006 (0.008)	-0.026 (0.031)	0.012 (0.021)
ROA	3.553*** (0.431)	-2.723** (1.200)	2.048** (0.915)
Leverage_Totdebt	0.258 (0.216)	0.082 (0.549)	-0.501 (0.567)
Tangibility	-0.895*** (0.307)	1.772*** (0.550)	-0.025 (0.402)
Z-score	-0.013 (0.046)	0.312*** (0.119)	0.074 (0.091)
Cash holding	-0.098 (0.361)	0.111 (0.841)	0.030 (0.857)
Sales growth	0.073 (0.149)	0.618 (0.604)	-0.674*** (0.245)
Earnings volatility	-2.881*** (0.642)	-12.471*** (4.618)	-0.951 (0.697)
Loss dummy	-0.252*** (0.094)	-0.565*** (0.195)	-0.038 (0.109)
R&D	-3.294*** (0.999)	3.022* (1.755)	-2.748 (2.387)
Unrated	0.926*** (0.136)	1.435*** (0.296)	-2.832*** (0.125)
Revolver	1.072*** (0.137)	0.461* (0.256)	0.109 (0.161)
Relationship lending	-0.063 (0.064)	-0.085 (0.098)	-0.220** (0.099)
Secured	0.290*** (0.081)	-0.499* (0.296)	-1.849*** (0.175)
Relative deal size	0.273* (0.158)	-0.556** (0.266)	0.501** (0.210)
Deal maturity	0.028*** (0.002)	0.003 (0.006)	-0.002 (0.003)
Ln(Spread)	0.521*** (0.052)	-0.235** (0.118)	-0.736*** (0.122)
Real GDP growth	-1.812 (1.217)	-0.960 (3.528)	-3.414 (3.149)
Ln(GDP per capita)	-0.260 (0.223)	-3.047*** (0.630)	-1.922*** (0.283)
Unemployment rate	-0.193*** (0.020)	0.010 (0.058)	-0.166*** (0.039)
Constant	-0.584 (2.451)	27.659*** (6.491)	17.644*** (2.929)
Observations	8401	7966	8344
Pseudo R^2	0.250	0.192	0.589

Table 4.7 – Economic mechanism: Election characteristics and the effect of political uncertainty

This table presents the results from the OLS regressions and the logistic regression of covenant intensity and performance pricing on gubernatorial election characteristics. *Election margin*, that takes the value of one if election margin value is larger than median, and zero otherwise. Term limit is a dummy variable which equals one if the incumbent state governor reaches term-limit expiration. Covenant intensity is the number of financial covenants attached in a loan package. Performance pricing is an indicator variable that takes value of one if a loan package contains performance-pricing provisions. Variables are defined in Appendix 4.A. Regressions include state and industry fixed effects. Standard errors are clustered at the state level. Standard errors are reported in parentheses. *, **, *** denotes the coefficients are significantly different from zero at the 1%, 5% and 10% levels, respectively.

a – Regressions

	(1) Financial Covenant Intensity	(2) Performance Pricing
Election margin	0.074** (0.033)	0.308*** (0.077)
Ln(assets)	-0.079*** (0.020)	0.357*** (0.037)
MTB	-0.004 (0.004)	0.004 (0.010)
ROA	0.964** (0.400)	2.029*** (0.443)
Leverage	0.051 (0.112)	-0.413** (0.197)
Tangibility	-0.292*** (0.098)	-0.912*** (0.296)
Z-score	-0.029 (0.019)	-0.000 (0.050)
Cash holding	-0.025 (0.173)	-0.890** (0.372)
Sales growth	0.131* (0.070)	-0.193** (0.095)
Earnings volatility	-0.441*** (0.131)	-1.584*** (0.423)
Loss dummy	-0.212*** (0.046)	-0.357*** (0.089)
R&D	-0.907 (0.657)	-2.786*** (0.892)
Unrated	0.189*** (0.035)	-0.081 (0.093)
Revolver	0.100** (0.043)	0.726*** (0.096)
Relationship lending	0.074*** (0.025)	-0.169** (0.075)
Secured	0.015 (0.064)	-0.703*** (0.112)
Relative deal size	-0.011 (0.056)	0.731*** (0.205)
Deal maturity	0.005*** (0.001)	0.017*** (0.002)
Ln(Spread)	0.334*** (0.025)	-0.270*** (0.070)
Real GDP growth	0.091 (0.460)	-4.166** (1.878)
Ln(GDP per capita)	-1.531*** (0.116)	-1.362*** (0.259)
Unemployment rate	-0.061*** (0.012)	-0.250*** (0.026)
Constant	17.450*** (1.187)	16.535*** (2.968)
Observations	8413	8413
Adjusted R^2	0.280	
Industry FE	Yes	Yes
State FE	Yes	Yes
Pseudo R^2		0.193

b – Average marginal effects at mean

	(1) Financial Covenant Intensity	(2) Performance Pricing
Election margin		0.060*** (0.015)

Table 4.8 – Economic mechanism: Adverse selection problem

This table presents the heterogeneity in the effects of gubernatorial election (Gubernatorial election) on covenant intensity and performance pricing using the OLS regressions and the logistic regression, based on whether borrowers has relationship lending with banks. Covenant intensity is the number of financial covenants attached in a loan package. Performance pricing is an indicator variable that takes value of one if a loan package contains performance-pricing provisions. Variables are defined in Appendix 4.A. Regressions include state and industry fixed effects. Standard errors are clustered at the state level. Standard errors are reported in parentheses. *, **, *** denotes the coefficients are significantly different from zero at the 1%, 5% and 10% levels, respectively.

	Without relationship lending		With relationship lending	
	(1) Financial Covenant Intensity	(2) Performance Pricing	(3) Financial Covenant Intensity	(4) Performance Pricing
Gubernatorial Election	0.064** (0.030)	0.250*** (0.081)	0.050 (0.030)	0.169 (0.105)
Ln(assets)	-0.040* (0.020)	0.417*** (0.033)	-0.116*** (0.024)	0.266*** (0.055)
MTB	-0.012** (0.005)	0.010 (0.014)	0.002 (0.004)	0.003 (0.013)
ROA	1.084*** (0.349)	1.435*** (0.547)	0.304 (0.308)	3.001*** (0.732)
Leverage	-0.018 (0.108)	-0.293 (0.234)	0.144 (0.114)	-0.488 (0.330)
Tangibility	-0.023 (0.125)	-0.957*** (0.369)	-0.175 (0.120)	-0.912*** (0.300)
Z-score	-0.023* (0.012)	0.023 (0.057)	0.002 (0.023)	-0.012 (0.063)
Cash holding	-0.168 (0.220)	-1.041** (0.490)	-0.170 (0.220)	-0.638 (0.577)
Sales growth	0.055 (0.063)	-0.337** (0.149)	0.152 (0.091)	0.019 (0.232)
Earnings volatility	-0.525*** (0.188)	-1.482* (0.817)	-0.406** (0.160)	-1.461*** (0.480)
Loss dummy	-0.219*** (0.044)	-0.396*** (0.100)	-0.241*** (0.041)	-0.391*** (0.120)
R&D	-2.049*** (0.499)	-2.706* (1.565)	-0.671 (0.647)	-3.191*** (1.067)
Unrated	0.203*** (0.034)	-0.059 (0.114)	0.124** (0.048)	-0.105 (0.127)
Real GDP growth	0.355 (0.642)	-1.234 (1.777)	0.149 (0.749)	-6.986** (3.376)
Ln(GDP per capita)	-1.467*** (0.124)	-0.967*** (0.352)	-1.459*** (0.108)	-1.723*** (0.290)
Unemployment rate	-0.052*** (0.012)	-0.143*** (0.035)	-0.056*** (0.014)	-0.365*** (0.042)
Revolver	0.106** (0.041)	0.951*** (0.126)	0.088* (0.050)	0.627*** (0.121)
Secured	0.006 (0.049)	-0.870*** (0.124)	-0.007 (0.053)	-0.565*** (0.129)
Relative deal size	-0.029 (0.068)	1.002*** (0.188)	0.019 (0.076)	0.288 (0.245)
Deal maturity	0.002** (0.001)	0.019*** (0.003)	0.004*** (0.001)	0.018*** (0.003)
Ln(Spread)	0.263*** (0.033)	-0.202** (0.101)	0.357*** (0.027)	-0.340*** (0.085)
Constant	16.889*** (1.236)	10.829*** (3.658)	16.890*** (1.081)	20.204*** (3.263)
Observations	4301	4285	4112	4088
Adjusted R^2	0.250		0.377	
Pseudo R^2		0.212		0.212
H0: Without lending relationship = With lending relationship				
F-test		1.11		0.25
Prob >F		(0.292)		(0.616)

Table 4.9 – Robustness tests

This table reports various robustness checks on our baseline results on the effects of gubernatorial elections on covenant intensity and performance pricing. **Panel A** replaces main dependent variable with a set of political uncertainty measures as in Baker et al. (2016). **Panel B** controls for presidential elections. **Panel C** controls for financial reporting quality. Covenant intensity is the number of financial covenants attached in a loan package. Performance pricing is an indicator variable that takes value of one if a loan package contains performance-pricing provisions. Variables are defined in Appendix 4.A. Regressions include state and industry fixed effects. Standard errors are clustered at the state level. Standard errors are reported in parentheses. *, **, *** denotes the coefficients are significantly different from zero at the 1%, 5% and 10% levels, respectively.

a – Panel A: Economic policy uncertainty index

	BBD index 3-month mean		BBD index 12-month mean	
	(1) Financial Covenant Intensity	(2) Performance Pricing	(3) Financial Covenant Intensity	(4) Performance Pricing
BBD	0.020 (0.036)	-0.145 (0.110)	0.137*** (0.049)	-0.301 (0.190)
Ln(assets)	-0.073*** (0.018)	0.360*** (0.037)	-0.075*** (0.018)	0.362*** (0.038)
MTB	-0.005 (0.003)	0.005 (0.010)	-0.005 (0.003)	0.005 (0.010)
ROA	0.767** (0.298)	1.990*** (0.449)	0.750** (0.295)	2.014*** (0.449)
Leverage	0.065 (0.088)	-0.410** (0.194)	0.062 (0.087)	-0.402** (0.193)
Tangibility	-0.097 (0.112)	-0.896*** (0.290)	-0.101 (0.110)	-0.892*** (0.291)
Z-score	-0.007 (0.012)	0.002 (0.050)	-0.008 (0.012)	0.004 (0.051)
Cash holding	-0.146 (0.174)	-0.857** (0.376)	-0.138 (0.175)	-0.868** (0.375)
Sales growth	0.104 (0.064)	-0.230** (0.098)	0.105 (0.065)	-0.229** (0.098)
Earnings volatility	-0.501*** (0.121)	-1.610*** (0.425)	-0.493*** (0.121)	-1.624*** (0.424)
Loss dummy	-0.229*** (0.031)	-0.367*** (0.088)	-0.229*** (0.032)	-0.365*** (0.089)
R&D	-1.543*** (0.521)	-2.764*** (0.911)	-1.551*** (0.520)	-2.756*** (0.911)
Unrated	0.170*** (0.031)	-0.083 (0.093)	0.169*** (0.031)	-0.082 (0.093)
Revolver	0.099*** (0.034)	0.727*** (0.095)	0.100*** (0.034)	0.726*** (0.094)
Relationship lending	0.074*** (0.021)	-0.180** (0.076)	0.077*** (0.021)	-0.182** (0.076)
Secured	-0.001 (0.045)	-0.705*** (0.114)	0.003 (0.045)	-0.709*** (0.112)
Relative deal size	-0.016 (0.057)	0.729*** (0.204)	-0.013 (0.056)	0.724*** (0.205)
Deal maturity	0.003*** (0.001)	0.017*** (0.002)	0.004*** (0.001)	0.017*** (0.002)
Ln(Spread)	0.323*** (0.026)	-0.257*** (0.074)	0.312*** (0.025)	-0.246*** (0.071)
Real GDP growth	0.046 (0.497)	-5.174*** (1.948)	0.171 (0.487)	-5.303*** (2.009)
Ln(GDP per capita)	-1.487*** (0.077)	-1.337*** (0.244)	-1.520*** (0.081)	-1.286*** (0.230)
Unemployment rate	-0.058*** (0.012)	-0.235*** (0.026)	-0.072*** (0.014)	-0.214*** (0.032)
Constant	16.986*** (0.810)	16.223*** (2.809)	17.345*** (0.858)	15.655*** (2.625)
Observations	8413	8413	8413	8413
Adjusted R^2	0.304		0.304	
Pseudo R^2		0.192		0.192

b – Panel B: Accounting for presidential election years

	(1) Financial Covenant Intensity	(2) Performance Pricing	(3) Financial Covenant Intensity	(4) Performance Pricing
Gubernatorial Election	0.059*** (0.018)	0.269*** (0.059)	0.047** (0.021)	0.231*** (0.061)
Presidential election	0.003 (0.016)	0.147*** (0.040)		
Ln(assets)	-0.073*** (0.018)	0.357*** (0.037)	-0.060*** (0.020)	0.353*** (0.043)
MTB	-0.005 (0.003)	0.004 (0.010)	-0.003 (0.004)	0.009 (0.011)
ROA	0.778** (0.300)	2.034*** (0.444)	0.806** (0.349)	2.226*** (0.517)
Leverage	0.064 (0.088)	-0.413** (0.195)	0.032 (0.091)	-0.534** (0.228)
Tangibility	-0.097 (0.111)	-0.913*** (0.296)	-0.029 (0.128)	-0.553* (0.330)
Z-score	-0.007 (0.012)	0.001 (0.050)	-0.013 (0.015)	-0.000 (0.044)
Cash holding	-0.153 (0.172)	-0.876** (0.371)	-0.113 (0.197)	-0.945** (0.407)
Sales growth	0.112* (0.063)	-0.202** (0.095)	0.101* (0.059)	-0.139 (0.103)
Earnings volatility	-0.497*** (0.122)	-1.571*** (0.422)	-0.527*** (0.134)	-1.644*** (0.498)
Loss dummy	-0.228*** (0.032)	-0.354*** (0.089)	-0.205*** (0.031)	-0.381*** (0.121)
R&D	-1.553*** (0.520)	-2.858*** (0.909)	-1.722*** (0.554)	-1.748 (1.163)
Unrated	0.169*** (0.031)	-0.089 (0.094)	0.166*** (0.031)	-0.127 (0.080)
Revolver	0.100*** (0.034)	0.732*** (0.095)	0.129*** (0.040)	0.873*** (0.103)
Relationship lending	0.075*** (0.020)	-0.171** (0.076)	0.079*** (0.025)	-0.202*** (0.076)
Secured	-0.003 (0.045)	-0.705*** (0.114)	0.000 (0.049)	-0.723*** (0.133)
Relative deal size	-0.018 (0.057)	0.729*** (0.204)	0.001 (0.067)	0.645*** (0.210)
Deal maturity	0.003*** (0.001)	0.017*** (0.002)	0.003*** (0.001)	0.018*** (0.002)
Ln(Spread)	0.326*** (0.025)	-0.268*** (0.072)	0.322*** (0.032)	-0.252*** (0.093)
Real GDP growth	0.150 (0.519)	-4.377** (1.875)	-0.177 (0.585)	-6.185*** (1.829)
Ln(GDP per capita)	-1.482*** (0.081)	-1.369*** (0.251)	-1.520*** (0.070)	-1.790*** (0.252)
Unemployment rate	-0.054*** (0.011)	-0.247*** (0.026)	-0.056*** (0.011)	-0.246*** (0.031)
Constant	16.901*** (0.849)	16.524*** (2.880)	17.229*** (0.746)	20.957*** (3.102)
Observations	8413	8413	6237	6234
Adjusted R^2	0.304		0.294	
Pseudo R^2		0.193		0.199

c – Panel C: Controlling for financial reporting activities

	(1) Financial Covenant Intensity	(2) Performance Pricing	(3) Financial Covenant Intensity	(4) Performance Pricing
Gubernatorial Election	0.053*** (0.020)	0.222*** (0.071)	0.057*** (0.019)	0.276*** (0.071)
Ln(assets)	-0.056*** (0.020)	0.359*** (0.045)	-0.079*** (0.019)	0.401*** (0.047)
MTB	-0.005 (0.004)	0.005 (0.010)	-0.019*** (0.004)	-0.011 (0.010)
ROA	0.776** (0.294)	2.099*** (0.545)	0.891*** (0.331)	2.818*** (0.544)
Leverage	0.141 (0.096)	-0.151 (0.241)	0.329*** (0.095)	-0.050 (0.266)
Tangibility	-0.057 (0.122)	-0.861** (0.379)	-0.137 (0.117)	-0.829** (0.356)
Z-score	-0.009 (0.012)	0.002 (0.053)	-0.016 (0.014)	-0.019 (0.057)
Cash holding	-0.152 (0.184)	-0.857** (0.400)	-0.071 (0.193)	-0.723* (0.388)
Sales growth	0.105 (0.071)	-0.223* (0.123)	0.103* (0.057)	-0.206 (0.127)
Earnings volatility	-0.637*** (0.158)	-1.271*** (0.402)	-0.506*** (0.141)	-1.033** (0.457)
Loss dummy	-0.219*** (0.035)	-0.336*** (0.107)	-0.231*** (0.033)	-0.310*** (0.086)
R&D	-1.370*** (0.484)	-2.958*** (0.930)	-1.142** (0.559)	-2.290** (0.918)
Unrated	0.173*** (0.032)	-0.037 (0.105)	0.171*** (0.030)	0.052 (0.097)
Revolver	0.136*** (0.037)	0.810*** (0.102)	0.098** (0.037)	0.820*** (0.099)
Relationship lending	0.062*** (0.023)	-0.170** (0.081)	0.067*** (0.023)	-0.146* (0.078)
Secured	0.003 (0.053)	-0.722*** (0.125)	-0.008 (0.052)	-0.728*** (0.110)
Relative deal size	-0.011 (0.054)	0.637*** (0.207)	-0.019 (0.057)	0.645*** (0.217)
Deal maturity	0.002** (0.001)	0.018*** (0.002)	0.003*** (0.001)	0.019*** (0.002)
Ln(Spread)	0.340*** (0.031)	-0.241*** (0.072)	0.321*** (0.029)	-0.271*** (0.069)
Real GDP growth	0.185 (0.527)	-4.440** (1.729)	-0.007 (0.600)	-3.585* (1.858)
Ln(GDP per capita)	-1.487*** (0.087)	-1.210*** (0.255)	-1.447*** (0.087)	-1.218*** (0.243)
Unemployment rate	-0.057*** (0.012)	-0.264*** (0.023)	-0.052*** (0.013)	-0.249*** (0.026)
Earnings Management	0.016 (0.108)	-0.310 (0.305)		
Accounting Conservatism			-0.172 (0.140)	1.636*** (0.487)
Constant	16.810*** (0.903)	14.237*** (2.876)	16.656*** (0.896)	14.051*** (2.866)
Observations	7360	7360	7338	7338
Adjusted R^2	0.275		0.278	
Pseudo R^2		0.193		0.193

4.8 Appendices of Chapter 4

Appendix 4.A. Variable definitions

Variable	Definition
Main explanatory variable	
Gubernatorial election	A dummy variable that equals one if a gubernatorial election is held in a state in a given year.
Loan-related variables	
Financial Covenant Intensity	Number of financial covenants (the count of six types defined in Table 4.1).
P-covenants	Number of performance-covenants as in Christensen and Nikolaev (2012)
C-covenants	Number of capital-covenants as in Christensen and Nikolaev (2012)
Dividend covenant	Indicator for a restriction on dividend payments
Capex covenant	Indicator for a restriction on capital expenditures
Sweep provision	Indicator for a requirement to have cash proceeds from asset sales or equity issuance or debt issuance to repay debt Sweep provision as in Christensen and Nikolaev (2012)
Performance pricing	Indicator for the use of a performance pricing provision
Rating-grid	Indicator for the use of rating-based loan pricing
P-grid	Indicator for using a loan pricing which is based on performance indicators
C-grid	Indicator for using a loan pricing which is based on capital ratio-based indicators
Secured	Indicator for a secured debt
Revolver	Indicator for a revolving facility that exists in the deal package
Relationship lending	Indicator for a borrower that borrows from the same bank within the last five years
Relative deal size	Deal amount scaled by borrower's total assets
Debt maturity	A weighted average of maturity for each facility in the deal
Spread	A weighted average of the all-in-drawn spread for each facility in the deal
Ln(Spread)	Natural logarithm of Spread variable
Firm-related variables	
Ln/assets)	Natural logarithm of total assets for a firm in year t-1

Continued on next page

Appendix 4.8– continued from previous page

Variable	Definition
MTB	Market-to-book value for a firm in year t-1
Leverage	Total long-term and short-term debt in year t – 1 scaled by lagged total assets
Tangibility	Net property, plant, and equipment divide total assets in year t-1
Z-score	Modified Altman (1968)’s Z-score in year t-1. Z-score is calculated as (1.2 working capital + 1.4 retained earnings + 3.3 EBIT + 0.999)/total assets. We use modified Z-score as in Graham et al. (2008).
Cash holding	Cash and short-term investment divided by total assets in year t-1
Sales growth	The difference in sales between year t-1 and t-2 scaled by total sales in year t-1
Earnings volatility	The standard deviation of quarterly earnings in the last three years before the loan year
Loss	A dummy variable that takes the value of one if the firm has a negative net income, and zero otherwise
R&D	R&D expenses scaled by total assets in year t – 1. Missing R&D expense is replaced with zeros
ROA	Income before extraordinary items divided by total assets in year t - 1
Unrated	A dummy variable that takes the value of one if firms are not rated by S&P ratings
State-related variables	
Real GDP growth	State real GDP growth
Ln(GDP per capita)	Natural logarithm of state real GDP per capital
Unemployment rate	Seasonally adjusted rate of unemployment

Appendix 4.B. Correlation matrix

This table shows the correlation matrix between variables used in main regressions. All definitions of variables are reported in Appendix A.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
(1) Financial Covenant Intensity	1.00																						
(2) Performance Pricing	0.14	1.00																					
(3) Ln(assets)	-0.39	0.16	1.00																				
(4) MTB	-0.03	0.07	0.04	1.00																			
(5) ROA	0.03	0.20	0.07	0.27	1.00																		
(6) Leverage_Totdebt	0.02	-0.02	0.16	-0.08	-0.17	1.00																	
(7) Tangibility	-0.05	-0.07	0.15	-0.07	-0.10	0.25	1.00																
(8) Z-score	0.05	0.10	-0.12	0.11	0.54	-0.42	-0.28	1.00															
(9) Cash holding	-0.03	-0.06	-0.13	0.15	0.09	-0.36	-0.30	0.08	1.00														
(10) Sales growth	0.11	0.05	-0.04	0.11	0.23	-0.03	-0.00	0.07	0.01	1.00													
(11) Earnings volatility	-0.23	-0.00	0.53	-0.00	-0.07	0.11	0.07	-0.18	-0.02	-0.11	1.00												
(12) Loss dummy	-0.02	-0.20	-0.13	-0.14	-0.54	0.22	0.00	-0.32	-0.02	-0.24	0.11	1.00											
(13) R&D	0.00	-0.04	-0.14	0.13	-0.05	-0.22	-0.26	-0.08	0.37	-0.00	-0.02	0.08	1.00										
(14) Unrated	0.27	-0.11	-0.67	0.00	-0.01	-0.35	-0.18	0.18	0.18	0.06	-0.32	0.03	0.16	1.00									
(15) Revolver	0.12	0.07	-0.20	-0.06	-0.02	-0.05	-0.03	0.05	0.02	0.00	-0.13	0.02	0.01	0.15	1.00								
(16) Relationship lending	-0.05	0.02	0.25	0.04	0.05	0.10	0.05	-0.00	-0.12	0.05	0.11	-0.06	-0.08	-0.18	-0.05	1.00							
(17) Secured	0.20	-0.22	-0.39	-0.12	-0.24	0.17	-0.05	-0.17	0.02	-0.01	-0.13	0.27	-0.01	0.18	0.15	-0.09	1.00						
(18) Relative deal size	0.22	0.04	-0.41	0.06	0.10	0.07	-0.04	0.03	-0.01	0.11	-0.22	-0.04	-0.03	0.25	0.18	-0.04	0.28	1.00					
(19) Deal maturity	0.05	0.15	0.06	-0.01	0.09	0.10	0.00	-0.03	-0.02	0.07	-0.03	-0.09	-0.09	-0.06	0.31	0.03	0.14	0.27	1.00				
(20) Ln(Spread)	0.18	-0.25	-0.33	-0.18	-0.32	0.21	-0.05	-0.23	0.04	-0.10	-0.07	0.33	-0.00	0.18	0.06	-0.12	0.59	0.19	0.07	1.00			
(21) Real GDP growth	0.16	0.04	-0.16	0.05	0.03	0.01	0.08	0.03	-0.03	0.19	-0.10	-0.05	0.03	0.06	0.03	0.02	-0.01	0.12	-0.01	-0.17	1.00		
(22) Ln(GDP per capita)	-0.29	-0.05	0.27	0.03	-0.00	-0.08	-0.16	-0.07	0.15	-0.10	0.15	-0.02	0.05	-0.09	-0.04	0.04	-0.00	-0.14	0.11	0.13	-0.32	1.00	
(23) Unemployment rate	-0.22	-0.12	0.22	-0.02	-0.01	-0.03	-0.01	-0.05	0.11	-0.14	0.12	-0.03	-0.01	-0.08	0.07	0.04	-0.03	-0.09	0.19	0.18	-0.38	0.38	1.00

Appendix 4.C. Regressions on term-loan contracts

This table presents the effects of gubernatorial election (Gubernatorial election) on loan spread and deal maturity. Variables are defined in Appendix 4.A. Regressions include state and industry fixed effects. Standard errors are clustered at the state level. Standard errors are reported in parentheses. *, **, *** denotes the coefficients are significantly different from zero at the 1%, 5% and 10% levels, respectively.

	(1) Ln(Spread)	(2) Deal maturity
Gubernatorial Election	-0.003 (0.014)	-0.118 (0.716)
Ln(assets)	-0.131*** (0.010)	2.580*** (0.233)
MTB	-0.012*** (0.002)	-0.131* (0.067)
ROA	-1.056*** (0.243)	16.345*** (3.384)
Leverage	0.572*** (0.048)	2.981*** (0.966)
Tangibility	-0.236*** (0.052)	4.033*** (1.315)
Z-score	-0.033*** (0.010)	-0.205 (0.357)
Cash holding	0.138 (0.086)	-0.664 (2.397)
Sales growth	0.054 (0.041)	1.309 (0.978)
Earnings volatility	0.000*** (0.000)	-0.012*** (0.003)
Loss dummy	0.140*** (0.022)	-2.655*** (0.476)
R&D	-0.449* (0.267)	-24.869*** (6.771)
Unrated	0.016 (0.018)	-0.992** (0.459)
Revolver	-0.125*** (0.028)	15.353*** (0.904)
Relationship lending	-0.000 (0.010)	-1.518*** (0.319)
Secured	0.547*** (0.020)	3.010*** (0.434)
Relative deal size	0.101*** (0.035)	13.006*** (1.280)
Deal maturity	0.002*** (0.000)	
Ln(Spread)		2.323*** (0.370)
Real GDP growth	-0.150 (0.387)	-13.827 (9.523)
Ln(GDP per capita)	0.198 (0.200)	-1.313 (4.413)
Unemployment rate	-0.024 (0.020)	0.605 (0.684)
Constant	3.556 (2.141)	8.174 (47.855)
Observations	8413	8413
Adjusted R^2	0.600	0.356

Chapter 5

Conclusions and Future Research

5.1 Summary and Conclusion

The thesis examines the internal and external corporate governance mechanisms that affect managers' incentives and firms' activities under uncertainty situations or extreme institutional environment. This starts by noting that governance practices have changed significantly in response to political environment, economic issues and uncertainty about the future. Chapter 2 then documents how the internal corporate governance approaches affect compensation structures of CEOs. Particularly, we investigate whether the presence of bankers on the board affects CEOs inside debt, which is known as a mechanism to align CEOs with debtholders, reduce risks and myopic investment decisions for firms. Followed Chapter 2, I look at how the media freedom affects corporate misconduct in Chapter 3. This is the first empirical study that relates the exposure to foreign product markets with media restriction and corporate misconduct. In another external corporate governance aspect, Chapter 4 investigates how private lenders design loan contracts during a political uncertainty period. This is the first study that focuses on covenants and state-contingent pricing by using an exogenous shock from gubernatorial elections.

In summary, this thesis adds to the literature on the corporate governance mechanisms that could affect firms' outcomes and be used to adapt to the growing socio-economic risks and unprecedented long-term trends. Specifically, the contri-

butions of the thesis can be grouped into three separate areas based on the three chapters shown in the thesis. Chapter 2 of this thesis adds to the literature on the determinants of inside debt and on how the specific characteristics of board of directors influence corporate outcomes and CEO incentives. Moreover, Chapter 3 contributes to the literature on the effect of media freedom and firm outcomes at the firm-level. Moreover, this study also adds to the literature on the spill-over effect of institutional characteristics of foreign product markets on firms headquartered. Lastly, Chapter 4 contributes to research on how private lenders assess information about borrowers and deal with transitory uncertainty related to elections. Further, this chapter contributes to literature that studies the impact of political uncertainty on private loans during the high uncertainty periods.

The results of this thesis are also attractive from a practical standpoint because they have important implications for policy makers. In particular, after the implementation of the SEC Release No. 34-55009, there has been an increase in the attractiveness of pensions and deferred compensations instead of stock options because firms need to disclose the value of stock options grants in their summary compensation tables. Hence, our findings in Chapter 2 offer economic insights into how board of directors affects the debt-like compensations, in addition to the equity of CEOs to reduce agency conflicts between debtholders and shareholders. Besides, this chapter also shows an optimal compensation package to maximise benefits for both parties of firms. Regarding external corporate governance approaches, the findings that I report in Chapter 3 further show the influence of media freedom on corporate misconduct. Moreover, these findings show empirical evidences that support for the concerns of practitioners about the increase of media restriction around

the world. Finally, together with the results from Chapter 3, the results from Chapter 4 confirm the impact of external corporate governance structures on corporate outputs in the uncertainty environment and political factors.

5.2 Limitations and Recommendation for Future Research

Based on the analyses conducted in the three empirical chapters, there are some shortcomings of the thesis that should be considered when designing future research.

First, in Chapter 2, we focus on the presence of bankers on board instead of the dynamic within the board. Specifically, in this chapter, we do not consider whether members of compensation committees affect CEO inside debt. Further research could verify whether these bankers on compensation committees affect CEO inside debt. Moreover, in this chapter, we compare firms with banker-directors and without banker-directors to identify the differences between these two types of firms. Therefore, we do not take into account the percentage of banker-directors on the board. Further tests on percentage of banker-directors on board would be interesting to identify the impact of banker-directors at the board level.

Data limitation also poses some constraints to the analysis based on the sales-weighted media restriction measure in Chapter 3. Whilst my dataset is extracted from both COMPUSTAT data and manually checked by reading 10-K reports, it is still important to see each country which accounts more than 10 percent of sales or assets, instead of a group of countries as reported in many 10-K reports. Therefore, if there is improvement in disclosing information from firms, a re-examine measure would be helpful to confirm results of this thesis. Moreover, this chapter considers

the effect of exposure to foreign countries based on their media freedom. Therefore, given the data constraints, I do not focus on media coverage of firms in the US. Further tests on media coverage of US firms would be interesting and helpful.

Finally, there are some interesting issues to be examined further regarding the research question in Chapter 4. There are still several possible economic channels that can explain the main findings. For example, firms that rely more on government would be more sensitive to political uncertainty periods. Therefore, future research would take a further analysis on government reliance, government lobby activities or government donations.

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